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ORIGINAL ARTICLES.

POINTS IN THE DIAGNOSIS AND TREATMENT OF SOME COMMON NEUROSES.

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There are few occasions in medical practice where it is of more importance for the reputation of the physician, the satisfaction of friends, the attainment of the ends of justice, the advancement of therapeutic science, and the welfare of the patient, to establish a correct diagnosis than when the practitioner has to decide between organic and functional disease. The line between them, as is being constantly demonstrated, is indeed a shifting one; as new methods are invented new lesions are found where before it was thought none existed; organs that to the naked eye have presented no morbid changes reveal to the microscope and the test tube alterations minute and hitherto imperceptible or evanescent, but none the less fatally standing in the way of normal activity than than those grosser ones which have until quite recent times engrossed the attention of the morbid anatomist.

Conditions hitherto known to us only as variations in the vigor of action have been shown to be accompanied by changes in structure, transitory indeed and capable of complete restoration, but none the less obvious to the minute scrutiny of the microscopist. Many of these are so slight and so evanescent that they can not be demonstrated upon the human being, and whether they correspond accurately with what we may suppose to exist in functional disorders is not as yet demonstrated, but practically we know that running more or less parallel to them we may draw a line which for purposes of diagnosis and treatment is of great importance.

In neurasthenia and hysteria, using the latter word in its most comprehensive sense, we have many symptoms which may also exist in organic diseases of the parts especially involved, and it is not always easy in a case before us to determine whether they are dependent upon such actual organic disease or exist merely as a disturbance engrafted upon the constitutional condition. Yet under hardly any circumstances is the proper treatment more directly determined by definite and positive diagnosis. Specific instances will show some of the difficulties better than general descriptions, but you will perhaps pardon me if I simplify matters by laying down, a little dogmatically perhaps, a few points which I do not think we are likely to go astray upon.

There is nothing in neurasthenia or hysteria which acts as a prophylactic against inflammation, degeneration or new formations.

It does not follow that because a patient has a few or many symptoms that are indubitably of hysteric origin that all are of that nature.

It does not follow that because certain symptoms are thoroughly fixed and unchanging, or even if they do not yield to anesthetics, that they are not hysterical.

Double optic neuritis is not found in mere hysteria.

A well-marked, regular ankle clonus is hardly ever present and the knee jerk seldom absent in mere hysteria. So far as my own experience goes I should say "never" in both these cases.

There are many cases of hysteria which do not present all the stigmata thereof; the hysteria of Charcot is not common with us.

In the cases of doubt and mistake which I shall report I intend no unkind criticism. Some of them were my own.

The will of Seth Adams provided for the care of "debilitated nervous persons, not insane," and this is the class which it has been the aim of the managers of the asylum known by his name to select. Like many other schemes framed on lines a little different from the usual, it was at one time spoken of as "Adams' Folly," but it has abundantly demonstrated the wisdom and kindliness of the founder by the number of invalids, of exactly the class he intended and described, which it has sheltered and relieved. It has never been considered a part of its function to treat cases of organic disease of the nervous centers and of late years insane persons have been admitted only by mistake or by too liberal a view of the cases on the part of the physician who sent them and whose opinion was accepted by the authorities. Nothwithstanding this careful weeding, out of 1,000 persons received 84 were sooner or later affected with nervous diseases which could not be classified on subsequent revision as either melancholia, neurasthenia, hysteria or hypochondriasis. Among these there were 10 of organic cerebral and 16 of organic spinal disease. Debility, dyspepsia and uterine disease acccount for 73 of the 99 which were not, strictly speaking, nervous diseases at all. Curiously enough, when we consider how often organic disease of the kidneys is accompanied by nervous symptoms, chronic Bright's disease is mentioned only once among these. But this is less singular than to find the very vague and undemonstrable etiology of "suppressed gout" suggested among so many cases only once, at the very time when the elastic doctrines of "lithemia" were growing so popular.

Mistakes or faulty estimates or failures of just appreciation, in diagnosis between organic and functional disease, can only be avoided by familiarity with and careful attention to both sides of the question. It is not enough to determine on the one hand the presence of gastric or intestinal catarrh, a cardiac murmur, a scanty urine, a uterine displacement, and to attribute to these all the symptoms present; and,

on the other hand, it is equally unsafe, because a patient has a multitude of symptoms, undoubtedly nervous in character, because many of them are distinctly recognizable as imaginary or exaggerated, to assume that she has no real foundation for any of them. The case should be disentangled symptom by symptom and the important ones investigated so far as possible by objective methods, being pronounced neurasthenic only after a careful exclusion of any organic disease, especially that most nearly counterfeited, or even of any more well-defined neurosis.

The interests of the physician as well as those of his patient and of science, are best promoted by such care, for a mistake on the latter side is more likely to be severely judged than on the other, for while he may be exposed to good natured ridicule among his professional brethren for needless alarm and over attention to nervous hypochondriasis, he is likely to be considered guilty of cruelty and neglect if he ignores sufferings which afterward prove to have a substantial foundation.

CASES.

A woman of 36 had been troubled for several years with severe headaches, occasional vomiting and gastralgia. She had possibly a somewhat nervous temperament but not extremely so. A diagnosis of gastric inflammation, and later, of neurasthenia with gastric symptoms, was made. Some years after the first diagnosis and several months after the second a double optic neuritis was found and a cerebellar tumor diagnosticated, of which she died some months later. No one can say just how long the tumor had been present and that the earliest symptoms may not have been correctly diagnosticated, but in the light of the autopsy, when we can always see so much more clearly, it seems very probable that the tumor was really of very slow development and had probably been causing gastric symptoms for years.

Another female patient had a facial neuralgia which was called by a justly eminent neurologist "hysterical." She was later found to have a double optic neuritis and the case progressed steadily to a fatal result from a tumor of the brain. Had this neuritis not existed, as it sometimes does not in such cases, it would have been almost impossible for a time, to make the true diagnosis conclusive, although there were other peculiarities that might well have cast a doubt upon the original one.

A woman between 50 and 60 became depressed and weak. She walked feebly in a peculiar crouching posture and her eyesight was defective. She was considered a neurasthenic and sent to a hospital as such. There the shape of her head attracted attention and it was quite clear that she was a case of the rare disease "hyperostosis of the cranium." It would have been, however, quite difficult to substantiate this diagnosis if we had not been successful in obtaining a photograph of the patient as a young woman, for it was not until she was confronted with this, side by side with a recent one, that her sister would admit that there had been any change in the shape of the head. This case was published in the July number of the *American Journal of the Medical Sciences*, which also contains Dr. Putnam's elaborate article on the same subject.

I find in an article by Byrom Bramwell a case quoted from Bennett, of a girl of bad habits, bad temper, a persistent malingerer, who presented an array of symptoms which were calculated to and did deceive the very elect, for she was seen by several most distinguished physicians, among them Bennett himself, who all concurred in a diagnosis of hysteria. She died suddenly and a large tumor was found in the right cerebral hemisphere.

A woman age 35, had for some years attacks of supposed sciatica succeeding a tender spot in the back. She went to New York to consult a physician but the pain disappeared, so that she went shopping and to the theater instead. Later, when in a hospital, there appeared a curvature of the spine, which was thought little of and she was encouraged to get up, ride and walk. After this she developed excruciating pains and tenderness in the abdomen and legs, so that it was almost impossible to move her to allow the bed sores to be dressed. The lumbo-dorsal enlargement increased. She died and there were found two large sarcomatous tumors in the abdomen attached the vertebræ and almost total destruction of the second and third lumbar. It will be noticed in how many points, as for instance the disappearance of the pain under excitement, the early stages of this case resemble the ordinary "spine complaint" with which we are all familiar, and it was apparently, so far as one can judge from the treatment, so considered at the hospital; or, at the most, an ordinary case of sciatica involving no serious organic change.

A young woman, not hysteric in appearance and manner, had for some years a persistent pain in the right hip, for which a diagnosis of "pseudo-hip-joint-disease" was made and acted upon for a long time. At a later period careful measurements showed an enlargement of the upper part of the knee joint with loss of the normal outlines, and on deep palpation it was quite clear that there was an enlargement of the lower half of the femur. This was perhaps a periostitis or possibly an ostitis, for which a specific origin was suggested by the family history.

But for one case of this kind there are a dozen of the other, where a purely neurotic condition of the joint is treated for a synovitis. Many years ago I treated a supposed case of chronic synovitis with great care, until my suspicions being aroused I sought the advice of an eminent surgeon, who confirmed my views as to its being a hysteric joint, but when I asked him if I should take off the stiff bandage he said: "If she were my own daughter, so that in case of necessity or doubt I could put it on again without causing remark, I should do so, but as it is not best in this case to show any indecision I think you had better let it stay awhile longer." This I did, but when I did take it off it stayed off, and there has not in many years been any return of the trouble, as there might easily have been had the diagnosis been wrong and we were making light of a real disease of the joint.

Coccygodynia is, in many if not most cases, a pure neurosis, and the removal of several of the joints is correspondingly often a failure, the "end of the spine" being just as painful as ever, when it is situated a few small vertebræ higher up. Even the oft boasted and convenient "moral affect" of the operation is of little value in such cases.

A little girl fell several feet, striking the lower part of the back upon a stone step. There was severe pain in the hip joint, but careful and repeated measurements failed to disclose any shortening, and the extreme difficulty of handling her in her nervous and excited

state interfered with the examinations. A diagnosis of "hysteric joint" was arrived at, but after a time the defect in the gait became so marked that this was no longer satisfactory and renewed examinations disclosed the fact that it was a case of that extremely rare accident "separation of the epiphysis of the head of the femur." Two precautions had been neglected in the first examination; one placing the patient on a *hard* support, and the second, partly in deference to the wishes of the parents, etherization.

We can hardly call errors in diagnosis the hesitation which may very properly exist in the early stages and sometimes even in the later, of abdominal tumors.

When some years ago a new service for nervous disease was being established at the Boston City Hospital by the transfer of patients from the general services, one of the first was a case of persistent abdominal pain which was sent over as "hysteria," but in a short time developed a tumor that was verified at the autopsy as cancer of the liver.

A woman suffered from intermitting abdominal pains without swelling or distinctly localized tenderness, which were considered, although it is fair to say, with some reserve, to be of the ill defined and functional character common in neurasthenia. Later, however, an appendicitis was diagnosticated and an operation planned, but when she was relieved, as she had been several times before, it was deferred and a few weeks later she died quite suddenly.

A young woman was treated for some time for anemia and general debility until a diagnosis of myxedema being made, she recovered rapidly on desiccated thyroid capsules.

Functional disorders of the heart are so commonly taken for something more fixed in character that I presume many of you, like myself, if a patient solemnly tells you that he has "heart disease," make up your minds before you begin the examination that whatever else you may find it will not be organic disease. Some of the less defined forms of spinal sclerosis are liable, in their early stages, to be overlooked in a general diagnosis of neurasthenia or hysteria. Errors in the opposite direction, however, are much more common and the persistent pains of nervous fatigue are attributed to "spinal disease."

Organic disease of the cord is hardly ever accompanied by pain in its immediate vicinity. Pain, if present, is almost certain to be situated in the distribution of the nerves having their origin at the affected part.

The distinction between vomiting of a purely nervous character, that due to organic disease, inflammation or neoplasms of the stomach and also from that excited by irritation of distant organs, as the uterus or the brain, or resulting from general poisoning as in Bright's disease, is certainly a very important one, but as even the special authorities admit, not always easy.

The first case I have mentioned, where a tumor pressed upon the floor of the fourth ventricle, is an excellent instance of one form of resemblance. It is very often assumed that, if it can be clearly made out that the vomiting is of a purely neurotic or, as it is usually termed, hysteric character, the case is devoid of danger. Vomiting, however, differs from the other hysteric reflexes in this, that while they may be violent and highly impressive upon the bystanders, they do not interfere seriously with any vital function, while on the other hand the constant and complete removal of food from the stomach, no matter what the cause, must inevitably destroy the normal nutrition. Fortunately it is true, as the authorities state, that in nervous vomiting sufficient food is usually retained to sustain life or even to maintain a very fair degree of nutrition, but sometimes the imitation is so very perfect and vomiting that has nothing to do with any gastric lesion is so persistent, so uncontrollable, and so thorough, that the supplies are reduced below the minimum compatible with life. Two such cases I have seen, where in one the diagnosis remained in doubt until the autopsy, and in another the physician, a man of sound judgment and long experience, firmly believed in the existence of a cancer until a stomach, healthy so far, at least, as any gross lesions were concerned, was removed and opened.

Is it not possible that the supposed special frequency of gastric ulcer among young women, which as an anatomic fact is denied by Brinton, and Hilton Fagge, may depend upon some cases of this kind and also upon those of metastatic vomiting of blood.

The most complicated knot to be disentangled by the physician who, without the cultivation of a theory, the pushing of a fad, or the searching after a pet operation, seeks to assign to all the causes present in the case before him their true share in the causation, is undoubtedly that which ties together the pelvic organs with the general nervous condition. Possibly a few of you can recollect the time when the thorough and intelligent investigation of local pelvic conditions was the rare exception, when dyspepsia, debility and spinal irritation were sufficient to cover all the anemia, backache, depression, nervousness, the general breaking down from which American women are supposed to especially suffer. More of you can remember when "ulceration" was responsible for the same set of symptoms, to be followed by displacements, cervicitis, endometritis, ovarian disease and pus tubes, each in its turn almost the sole recognized condition and each with its appropriate and popular operation. Who that is familiar with these changes, with the self satisfaction and boasting that accompanied each shift of theory, fondly supposed to be the final one, but just as evanescent as its predecessor, can possibly believe exclusively in any one of them? When such a variety of views is possible, it is hardly fair that any one should be reproached with errors of diagnosis, but it is none the less important that correct and well defined views should be at the basis of treatment.

Symptoms both local and general are often indubitably present, but which are primary and which are secondary is a question which is unfortunately too often answered more in accordance with the preconceived views of the practitioner or of the patient, than with the study of the individual case. What is required in such cases is rather an accurate balance than a sharp line.

The gynecologist points to the constitutional results of constant pain, to the crippling due to the sagging of unsupported and hypertrophied organs, to infection from local inflammations, to the sapping of strength and vitality from too great functional activity, to the exhaustion of too frequent childbirth and lactation; and when he sees these symptoms he is likely to attribute them to the set of causes with which his practice has made him most familiar. The neurologist, on the other hand, knowing how often he has seen local lesions remain without impairment of

the general health, so long as the strength, muscular and nervous, remains good, and knowing that the exhausting effect of a burden is to be estimated not only by its own weight but by the vigor of the shoulders which have to carry it, that local pain may be merely the expression of general weakness, is liable to overlook their existence or to underestimate their importance. But the consequences of erroneous opinions on one or the other side are by no means of equal importance to the patient. If we suppose, what in practice rarely occurs, that the neurologist or the general practitioner is allowed by anxious bystanders to pursue the even tenor of his way and that he does overlook real disease in the pelvis, the worst that can very well happen is a loss of time and a subsequent correction, which may be more or less mortifying, as he has more or less strenuously asserted the entire innocence of the guilty organs. But if, on the other hand, the practitioner direct his attention solely to local lesions, real or imaginary, he will probably accomplish one of two things. His patient is only too easily lead to believe as he does, and there will be established that particular form of hypochondriasis known as "uterus on the brain," or else he will resort to heroic surgery, of which the most flagrant and pernicious form is normal oophorectomy, with a greater or less accompaniment of other mutilation according to fashion or the desire to go beyond the rival operator.

I hope it is clearly understood that I am not talking about surgery, that is, surgery for surgical disease; that I do not pretend to meddle with and am content to leave the question of the removal of a tumor or the opening of an abscess in the pelvis in the hands of the surgeon just as I would the treatment of the same lesions situated anywhere else. When constant wearing pain was located in one spot, and that an easily accessible organ, and when a vague pathology with the facile and elastic phrase of "reflex," found it so easy to explain most various and distant symptoms by a local irritation, it was certainly not strange that the surgeon should have sought to remove the organ which seemed to be the cause, and that such operations should have had their run of popularity. What, however, to be deprecated is, now that experience has shown in how small a proportion of cases is the desired relief obtained, that a desire for surgical reputation or experience, the eclat of numerous laparotomies, should be such an irresistible temptation as to permit a useless mutilation, which has sometimes seemed to me to act as a mordant, fixing more indelibly in the fabric of the patient's whole being the deep dye of constant and hopeless suffering. Admitting that there are cases so desperate and with so little chance of relief that such an operation, as offering something even slightly better than death, is fully justifiable, we know well that they are fortunately not so numerous as to afford any reasonable basis for some statistics which have been published. The surgeon has no right to seek such cases. They should be urged upon him long and strenuously by those who have had opportunity to observe thoroughly, and who are free from operative prejudice, before he undertakes them. "Art for art's sake," is no proper motto for him.

Some months ago I looked up as thoroughly as possible the histories of twenty-seven women who had come under my notice, who had had their ovaries removed for nervous affections. Since then I have known of several more whose fate has not made me change my opinion. Of the twenty-seven, three or four recovered or nearly so, one or two of these having been not far from the natural menopause. Three or four others have improved, after years of invalidism, so that it may well be doubted how much their recovery was accelerated. One died of causes not connected with the operation, one from cocain and one shot herself a few months after a "highly successful operation." One died of nervous shock a week after the operation. One at least (not of the twenty-seven) is hopelessly insane. Many are invalids and several have sought admission or readmission to the asylum.

Local irritations, either in the form of pain or of necessary and frequently recurring muscular action imperfectly performed, and requiring for each repetition a conscious mental effort, are the most frequent accompaniments of nervous breakdown and possibly important factors in its production. On the other hand, general weakness, acute or chronic, offers much less than the average and normal resistance to the local strain. Thus we have other knots to disentangle in connection with various organs, of which after those already discussed, the eyes are perhaps the most important. Eye strain, either of the muscles of accommodation or of fixation, arising from their essential weakness or from a constant more or less unsuccessful attempt to correct errors of refraction, has long been recognized as a cause of headache and many other nervous disturbances, but it is pushing a theory too far when it is made to lie at the base of all the most important neuroses. A reading headache may have nothing to do with the ocular muscles, as in the case of a girl who read with her fingers and had no perception of light.

I suppose no scientific man would think of asking "what is the necessity for making a remote diagnosis in cases where you have obvious dangerous conditions to be combated. Treat the symptoms which threaten life, no matter whence they arise." There may be under some circumstances, and temporarily, a plausible foundation for such a view, and it is sometimes suggested by the laity, or by those who like to consider themselves more "practical" than their colleagues, but its inadequacy as a support for any definite therapeutic plan is obvious upon the mere statement of it.

The treatment of neurasthenic conditions and its congeners, melancholia, hypochondriasis and hysteria, is sufficiently well understood and depends largely on attempts at the restoration of the normal nutrition and action of nerve tissue by rest, diet and exercise, with all the details and adjuncts. These are always useful and sometimes sufficient.

The special point, however, which I wish to emphasize is practically far from new, but I do not think it receives from the medical profession, at least in a theoretical point of view, all the attention it deserves. We smile at the preternatural sagacity, the unerring intuition, the more than human sympathy and devotion, the miraculous successes of the interesting hero, or now quite as frequently heroine, of the modern medical novel, but notwithstanding our skepticism as to the power not born of knowledge, we must seriously recognize how important is the personal feeling and influence of the physician as expressed by him in definite statements or received by the patient in vague but not weak impressions of approaching relief. The old faith is now becoming a modern doctrine and the

art based upon it is called "suggestion" or "suggestive therapeutics." It is a portion of his art which should be most jealously guarded by every physician and never allowed to be monopolized by those whose ignorance ought to deprive them legally and morally of the right to use it at all. Whether this is best carried on by means of hypnotism, with which in modern discussions it is very apt to be associated, my experience does not justify me in saying positively. Its practitioners make very positive claims for it. I am sure, however, that that is not the *only* useful way and that suggestion, as covering a great many methods of bringing psychic influence to bear, various in detail but one in principle, is often a most effective agent without hypnotism. I have seen cases that if they had gone through with forms of hypnotism, or indeed those of any miracle cure, would have gained a notoriety quite as great as many which have figured in sensational reports of the daily press or make their rounds through the clubs and the sewing circles. Now it is for this purpose that diagnosis, instead of being of the least, is really of the most importance.

Setting aside the great injury which may arise from the neglect of efficient therapeutic measures of the ordinary kind by those who prefer to trust themselves to any of the acknowledged forms of faith cure, it is desirable that the physician, as distinguished from the faith curist, should be able to gain from his knowledge the firm persuasion and confidence which the curist gets from his ignorance. Patients are shrewd observers of their attendants when their senses are sharpened by anxiety. The curist can give them, with the boldness and undoubting sincerity which arises from knowing nothing at all about the nature of the disease in hand, assurances of the disappearance of their troubles, which the physician, unless he be certain of his diagnosis, would find it very difficult to assume, even if he thought it right to make promises which he is doubtful of being able to fulfill. One of the most interesting phenomena of the last few years, from a medical and psychologic point of view, is the systematic development of the various forms of faith cure, with their colleges, churches, professors and patients. The ready acceptance they find among persons of supposed mental cultivation would perhaps be not the less remarkable had it not always been so, which makes it less surprising but no less absurd. We can not talk it down. It is better to study and to profit by it. A little inquiry is sufficient to show that the successful cases are those heard of, while the failures make but little impression; but even with a very liberal discount in this direction we must admit that people do get well under the influence of these humbugs, just as they have been doing for centuries from the king's touch, or the witch's brew, or Lourdes, or St. Anne de Beaupre, the Zouave Jacob, the Vermont Healer, fashionable springs, quack medicines made of the costliest of metals or the cheapest of weeds, or physicians good or bad, learned and ignorant. Cures, like fish, do not grow any smaller by being talked about and many wonderful stories shrink immensely when traced back to their original sources. The case which appears for a few days or weeks as almost a miracle sinks into obscurity, as specialist after specialist has been consulted and hospital after hospital is visited, each with the relief born of renewed hope, but each leaving untouched the psychic substratum of weakness, congenital or acquired, or the habit of invalidism.

But the residuum of real cures or of great permanent relief deserves our attention. It is the strong stimulus of faith and hope, the turning of the attention into other channels than that of symptom watching, the firm conviction of the possibility of the disappearance of pain and weakness, which is the active agent in this kind. There is no doubt that in many minds the active controlling forces are more easily reached by mystery and transcendental theories than by logic and observation; that imagination is a more powerful stimulus than scientific accuracy notwithstanding the liking which some have for the latter as a disguise. A preternatural science which can, with one sweep of vague theory, wipe away all discussions of petty details, is much easier to manage and to fit to the individual case, than a science founded on the observation of facts, and here utter ignorance gives to the charlatan an advantage which can not be met by the physician with any half knowledge. Nothing but confident diagnosis can invest him with the well founded authority which the other can so easily assume because he knows not its dangers.

The practice of "suggestive therapeutics" is no new thing, but physicians have been too apt to consider it rather an incident, than an important part, of their office and to attribute to their drugs or their knives what properly belonged to themselves and to their knowledge of pathology and diagnosis. I have heard an eminent surgeon after a vivid description of his sufferings from the importunities of a patient whom he had skillfully relieved of her ovaries but not of her sufferings, say: "I told her at last that she had better try 'christian science.'" For my part I prefer that if the fates have ordered that my patient is to leave me and seek "christian science" or any other faith cure for the relief which I have failed to give, that she should do so unmutilated. The least I can do is to leave her as well as I found her.

But I much prefer to say in effect something like the following, and in order to do this I want a diagnosis. "You *can* get well. Now why will you not do this for me, whom I presume, from the fact of your having put yourself under my care, you consider a reasonably skilful and honest physician, and who have seen and studied enough cases of cancer of the stomach to assure you that you have not got one, just as willingly as for some old woman who does not know anything about cancers and who if you really had one would tell you, just as confidently as she does now, that it was all a product of your own low and earthly prejudices, and that a cancer of the stomach is just as easily gotten rid of by a mental effort as any other set of ideas." If she be a sensible woman and I have succeeded in gaining her confidence, she will get well, but if she doubts my diagnosis, which is very apt to mean that she sees by my manner that I am not quite sure of it myself; if she prefers to believe that she actually has what I, with my low and earthly views, might call a cancer, but if she "puts herself on a higher plane of thought" there are no such realities as pain, or vomiting, or emaciation or death; that a fatal carcinoma is an invention of the doctors; that is, if instead of being willing to admit that her personal symptoms may be psychic she has been persuaded that the whole fabric of pathology rests on an imaginary basis, then the faith curist may score as a miracle the result which I, as a man of common sense and resting only on a basis of ordinary knowledge could not attain as a bit of every day practice. The power

of reiterated and confident assertion, unsupported by a particle of proof or argument, simply ignoring repeated demonstrations of its baselessness is enormous. It is, for instance, at the basis of all advertising and we constantly see, in religion and politics, the most absurd doctrines gain a foothold by the simple process of stating them over and over again. Such a position is a short lived one perhaps, when based upon no element of truth, but it seems a pity that so powerful an agency should not be made to do better and more permanent work by having something real behind it, and this something is for us a diagnosis.

ALTERNATING PERSONALITIES; THEIR ORIGIN AND MEDICO-LEGAL ASPECT.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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The condition of double personality has, in a way, always been recognized, but no special importance has generally been attached to it by the profession. Cases of protracted somnambulism or an occasional instance of catalepsy or trance, either with or without remembered visions or voices, were referred to as curiosities, but without any just analysis of the condition or attempt at classification; in fact, they have been looked upon as belonging to no system of recognized psychic phenomena, and in general, like many other variations from the usual personality—the recognized, reasoning, knowledge acquiring personality—they have been looked upon simply as *abnormal*, and been thrown into the category of either hysteria or insanity. Of late, however, the subject has received more definite treatment; many cases of the condition have been carefully observed, their peculiarities studied, and their relations to other psychic states have been considered. Ribot, Janet, Richet, Kraft-Ebing and others have given attention to the subject, plainly recognizing the condition, whatever interpretation it may have received at their hands. Beside the contributions of these acknowledged authorities in the profession, and including them, a vast number of well authenticated cases have been collected by the English Society for Psychical Research, with its American Branch, and have been carefully studied by such men as Professor James of Harvard, lately president of the Society, Professor Sidgwick, and especially by Mr. Frederick W. H. Myers, the English secretary, who has treated the subject in the Proceedings of the Society with a degree of knowledge and ability, as well as scientific accuracy, which has not been exceeded even by the noted writers before mentioned.

At the meeting of the AMERICAN MEDICAL ASSOCIATION at Baltimore, I drew the attention of this Section to some facts and observations tending further to establish the reality and distinct character of this condition. I described several well authenticated cases, some of which had long been under my own personal observation, in which most marked and definite alternations of personality occurred, and in which the second personality was present for long periods of time—days, weeks and even months—taking complete possession of the physical organization, caring intelligently for it, and in some instances changing it from a condition of disease, pain and helplessness to one of health, and ability to perform all the duties of life in a perfectly normal and efficient manner. I also pointed out the relation which this condition bears to somnambulism and the veridical dreams of ordinary sleep, to the trance condition, and especially to the trance and somnambulism occurring in the hypnotic state.

Kraft-Ebing, after an exhaustive study of the case of Ilma S. by means of hypnotism, clearly differentiating three distinct states of consciousness, comes to the following conclusions: "Frequently repeated experimentation makes it evident that the three different states of consciousness which may be observed and induced in this patient exist, typically congruous and apparently regular, under identical conditions. It is further evident that these states of consciousness have absolutely nothing in common save that they are observed in one and the same person. Thus this person represents three psychic existences."

It will be fully admitted, then, that a second, and in rare instances even a third, condition of consciousness is shown to exist in the same individual; that they are entirely distinct psychic states, having different and often entirely opposite characteristics, opinions, likes and dislikes, distinct chains of memory and a different personal history; so distinct are they that they may be, as indeed they are, properly designated as distinct personalities, and called by different names. Kraft-Ebing, however, in saying that these different states of consciousness have "absolutely nothing in common," promulgates an error; for, while the primary personality has no knowledge whatever of the second, nor of any succeeding personality, the second personality has always a more or less intimate knowledge of the primary self, but only as another and entirely distinct person. Again, the second personality, while having knowledge of the primary self, has no knowledge of any third, nor of any subsequent one; so also the third knows *number one* and *number two*, but nothing of *number four*, should such a personality appear; and what is still more wonderful, *number two* can sometimes distinctly impress *number one* after that personality has resumed consciousness. So important is this fact that I will illustrate it by reference to the case of Madame B., Professor Janet's hypnotic patient, with her three personalities—Léonie, the original Madame B., Léontine, the second personality, and Léonore, the third.

The patient being hypnotized and Léontine being present, before awakening her Professor Janet said, "Now, when I awaken you and Léonie comes back, you, Léontine, will make her untie her apron and take it off, and then tie it on again." He then awoke her, and Léonie—the usual Madame B.—was present. She, supposing Professor Janet had finished his experiment, of the nature of which she never had any knowledge, was conducting him to the door, chatting in the meantime in her ordinary simple, almost stupid manner. At the same time she commenced to fumble at her apron strings and, without knowing what she was doing, untied them. At that moment Professor Janet called her attention to the matter, saying, "Your apron is falling off," whereupon she looked surprised and said, "Why, so it is," and at once, with full consciousness of what she was doing, she returned it to its place and re-tied it. Professor Janet considered the experiment complete; not so Léontine; she had not finished the work that had been laid out for her, and again Léonie unconsciously commenced to fumble at her apron strings; again she took off the garment, and then quietly replaced and tied it, all the

while talking to Professor Janet and perfectly unconscious of what she had now for the second time done.

The next day when Léonie was again hypnotized Léontine, as usual, appeared, and at once said to Professor Janet, "I did what you told me yesterday; why did you tell her that her apron was falling off? Just for that I had to do the job all over again;" thus showing the activity of the second personality while the primary self was present and in full control, and also the influence which *number two* was able to exert over *number one*. Again, Léonore was able to make Léontine hear a voice reproving her for her incessant gabble, by which also Léontine was greatly alarmed. I have also witnessed similar phenomena in cases under my own observation.

Having, then, established the fact of separate and distinct states of consciousness, or personalities, it is possible to classify the cases or, in other words, to point out the different conditions under which this second personality or subliminal self has been observed.

1. There are the cases of distinctly alternating personalities, in which the change from one to the other occurs suddenly and spontaneously, and an entirely new personality comes upon the scene, entirely sane, with perfect knowledge of and in perfect harmony with its environments, continuing not only for hours, but for months and even years, performing the duties of life in a wholly normal, useful and exemplary manner, and sometimes, as in Dr. Azam's case, Félida X, much better than the original self could do.

2. There is the very large class of cases in which the second personality or subliminal self is brought to the surface by means of hypnotism. Of this class Professor Janet's case of Madame B., Kraft-Ebing's Ilma S., Dr. Dufay's case of "Jane" and my own case of "Miss A." are marked and typical examples, and to this list doubtless every physician who has had experience in hypnotizing could add examples. It is this subliminal self which hears the suggestions made by the hypnotizer, and impresses them upon the primary self on its return to consciousness, so as to insure their fulfillment as post-hypnotic suggestions. It is that also which influences the functions of organic life, causing such marked changes in digestion, circulation, excretion, and especially that wonderful influence on the vaso-motor system which by suggestion causes vesication, stigmatization and kindred marvels.

3. There are the startling phenomena which occur in ordinary sleep, namely, somnambulism and veridical dreams.

4. There is the large class of changes in personality as well as intelligence brought about by recognized pathologic conditions of the organism.

Beside these classes, there is the whole series of automatic actions—automatic speaking, writing and drawing, also hallucinations of hearing voices and seeing visions; all of which belong to the varied action and influence of the subliminal self.

It is of course impossible to attack the metaphysical problems which arise with reference to the origin and nature of consciousness together with the resulting personality and its varying phases, but some idea regarding the nature of personality is necessary to the further consideration of our subject.

Ribot, in his monograph on the "Diseases of Personality," tells us regarding this matter that "we are confronted by only two hypotheses," one the old supernatural theory, that personality is the fundamental property of soul or mind; the other, which he calls the new and scientific view, that it is "only the expression of organism." In other words, mind is the product of organism; but when the question is asked "Of what is organism the product?" his last word is: "To biology belongs the task of explaining, if it can, the genesis of organism. Psychologic interpretation can only follow in its wake." He points out the necessity for a reasonable theory for the genesis of organism, but for himself he simply ignores the whole matter; he takes a ready-made organism with its germ of consciousness and assumes, without the slightest proof, that the germ of consciousness is the result of the organism. This, plainly stated, is Ribot's "very recent theory," and this is the particularly scientific method by which it is maintained.

Let us follow up our author's statements, for reasoning they can scarcely be called.

A little further on he says: "It will then be time" (after having studied its constituent elements), "to compare personality with the lower forms through which *nature has essayed to produce it*, and to show that the psychic individual is the expression of organism."

Here a new element, nature, is introduced, and it is quite important to understand what he means by it. Is nature active or passive? Ribot says, "Nature essays to produce personality through lower forms"—and presumably it does so. That is *activity*. Nature, then, is active, whatever else it may be; and there must of necessity be an active principle in nature which works, which produces effects. Now, it matters not what we call that power in nature which works for definite ends, as Ribot particularly explains, and produces definite results. We may, with the supernaturalists, separate it, personify it, call it deity and clothe it with attributes, or with Herbert Spencer call it the unknowable and leave it naked; we may with Matthew Arnold call it the "power which makes for righteousness," or with Schopenhauer consider it the power which makes for evil; by whatever name we please to call it, it is still the *power which works;* and it is with this power in nature that Ribot and his school must reckon, and not with the "very old" theory of supernaturalism.

In 1874 at the meeting of the British Association at Belfast, John Tyndall, that Titan of science, as the incoming president of the association, stood up in that assembly of distinguished *savants* and pronounced these memorable words: "Abandoning all disguise the confession which I feel bound to make before you is, that I prolong the vision backward across the boundary of experimental evidence and discern in matter, which we in our ignorance. . . . have hitherto covered with opprobrium, the *promise* and *potency* of *every form of life*."

Throughout the lands where science was known there went up a cry of indignation from the champions of supernaturalism on the one hand and from the hard and fast materialists on the other; but the pendulums which measured the progress of each of these sentiments had registered their widest swing, and from that day to the present each has been moving in a gradually ever narrowing arc.

It is not with supernaturalism and ready-made souls that Ribot has to reckon to-day, but it is with that promise and potency *in nature* which lie beyond the reach of scalpel, microscope and laboratory reagents. Away beyond the boundaries of experimental evidence,

back of consciousness and back of organism, in matter itself we discern the promise and potency of every form of life. It dwells in inorganic matter, urging it onward to higher forms, to crystallization, to protoplasm, to the organized cell and then to the higher forms of life with all their wonderful attributes. It is this that expresses itself through organism; without it organism has nothing to express. It is *this* in nature which "essays to produce personality through lower forms," remains its basis after it is produced and is its promise of still further development.

Throw out of consideration then the first of Ribot's "only two hypotheses," by which he so confidently assures us that we are confronted in our search for the genesis of personality and in its place put this "promise and potency" which is in nature, whose attributes we need not define, and the two hypotheses from which to choose stand thus:

1. Personality along with its accompanying organism is the product of a power inherent in nature.

2. Personality is "only an expression of organism."

The first is broad inclusive and presents a reasonable explanation of processes which lie beyond and back of experimental evidence. The second is narrow, exclusive, timorous and explains nothing. To examine these propositions critically, to trace this power in its evolutionary action, first as attraction or repulsion or simple *motion* in inorganic matter, as *life* in the organized cell and lower organic forms, as *sensation* in the animal world and as *mind*, consciousness, personality in man, is far beyond the limit to this paper; but it is this power in nature, ever striving for fuller expansion and expression which has projected a universe teeming with motion, life, sensation and mind.

We have then to deal with personality as something more than the evanescent exhibition of consciousness, a mere function of organism; it has a basis and quality drawn from the reservoir of power which is in nature, power that was before organism and was that by which and for which organism came into being; to argue otherwise is to reverse cause and effect, and make the greater subservient to the less.

But it may be asked, how can this view be reconciled with the theories of multiplex or alternating personalities and the subliminal self? I reply, not only does it harmonize with, but it materially strengthens that theory. Ribot says truly: "Our conscious personality, the consciousness which each one of us has of his present state as compared with prior states, can never be more than a feeble portion of our total personality which remains buried deep within us." We have seen how this personality is recognized by all competent writers; we have also seen how promptly this deeply buried portion of our personality comes to the surface and manifests itself as distinct and capable of independent action, and under what circumstances this occurs.

How did these various phases of our personality, so distinct and different, claiming for themselves separate existences and names, come to exist and why do they manifest themselves at all? As Ribot would describe personality by a single word, *habit*, so I, perhaps with more obvious propriety, might describe the appearance of a second personality with the single word *atavism*.

It is a well recognized fact that certain clearly defined traits or characteristics, either physical or mental, existing in ancestors, near or remote, may, after passing by one or more generations, at length crop out distinctly and unmistakably in a later one. Physical peculiarities or deformities, tendency to certain diseases, or peculiar mental characteristics are frequently in this manner transposed; also a peculiar insight or genius for certain pursuits, as, for instance, hunting, fishing and frontier life, a military career, mathematics, music, acting or scientific pursuits, existing in a marked degree in some near or remote ancestor may, indeed, be inherited directly in the succeeding generation, but, on the other hand, it may pass over one or more generations to appear in an unmistakable manner in a later one.

Suppose, for instance, that five generations back there appeared a man of marked and thoroughly bad characteristics married to a right-minded, moral, even religious woman; that he was a vilifier of morality and religion, profane and vicious in life and unscrupulous in his dealings with others; that the generations which immediately succeeded him came under influences which aided by inherited characteristics from the mother, led to lives of morality, uprightness or even conspicuous piety. In the fifth generation, however, appeared a man who in the midst of these moral and religious environments was conspicuous for his profanity, vicious life and unscrupulous conduct, so identical with his remote ancestor as to make the connection undoubted. Where did this evil tendency exist during the four intervening generations? Let us tap the main line between the two extreme points and see what information may be extracted. In the fourth generation was a mild, religiously inclined woman, but of unsound health and perhaps of unstable personality. From some sudden shock, syncope or loss of consciousness occurs and, as in the case of Félida X., on recovery an entirely new and different personality is found to have taken the place of the original one. It professes to be a man, and to the horror and consternation of the good people surrounding her she commences to curse, to vilify everything good and upholds sentiments and practices of the most offensive and criminal character. This person has a chain of memories and a personal history entirely foreign and unknown to the primary self, but quite consistent with those of the remote ancestor whom we have considered. In an hour or a day the primary consciousness has returned, but there is not the slightest knowledge or recollection of the character which she has represented in her second personality, and very likely the case is diagnosed as temporary insanity; in a more primitive age it would have been called possession by an evil spirit. It was in reality the strongly impressed characteristics of a distinct personality which had lain dormant in the subconscious self for three generations, now coming to the surface temporarily under favoring circumstances in the fourth. In another generation it actually appeared, an *atavism*, as the primary and usual personality. In like manner a personality of conspicuous goodness or conspicuous talent might pass over many generations of mediocrity or of evil-doers, and appear, a pleasant atavism, after one or many generations had intervened. Less extreme personalities might be formed in like manner, and more than one might be impressed upon individuals in successive generations, giving rise to the perplexing and much debated condition of multiplex personalities. Kraft-Ebing, as we have seen, found in his patient "three psychical existences"

or personalities. Professor Janet's patient, Madame B., possessed three widely differing ones; while one of my own cases presented three and another two, alternating spontaneously at longer or shorter intervals, not including the cases in which changes of personality were brought about by hypnotism.

With this view of the origin and nature of ordinary as well as alternating personalities, it is not difficult to determine the medico-legal aspect from which these cases should be viewed. It is evident, first, that the primary self must not be held responsible for actions, either good or bad, committed by the second or any succeeding personality, since it is absolutely ignorant of the doings or even of the existence of these personalities. It would undoubtedly be just to restrain the individual from violence or wrong-doing, during the presence of the personality committing the wrong, but no longer; and it would be abhorent to all our ideas of justice to take the life of or even to severely punish the individual whose identity we have been accustomed to associate with the ordinary self, on account of wrong-doing committed by any succeeding personality, while the ordinary self was wholly unconscious.

It would have been manifestly unjust to punish Kraft-Ebing's Ilma S. for theft committed by her second personality, and wisely the court so held. Again, in judging of the sanity of individuals characterized by alternating personalities, we must *judge* each state or personality by itself without reference to other states, but must *act* chiefly with reference to the primary self.

Insanity is the temporary or permanent loss of an intelligent comprehension of surroundings and relationships to such a degree as to incapacitate the affected person for the fulfilment of the duties and relations of life, and consequently render him a menace to himself and others. In the application of this or any other definition of insanity to particular cases, the fact that it is not the individual's primary or ordinary self which is being examined should make no difference in the conclusion arrived at; if the action of the second self falls outside our accepted definition then that self is sane. Félida X., in her second condition had even a clearer comprehension of her surroundings and her relations to others than when in her primary state; and the same may be said of many other individual cases of the same kind, but if found insane, in disposing of the case reference must be had to the fact that it is not the primary or usual self that is affected, and *that* self when present should not be made to suffer.

The same rule is applicable in judging of insanity or crime appertaining to persons whose actions are automatic, even though consciousness is retained, as is frequently the case with those who have the faculty of automatic writing, speaking and other automatic actions carried on by the subliminal self; the ability of the subliminal self to influence the action of the primary self, as previously shown, must be taken into account and the degree of responsibility judged of accordingly.

Professional experts, by opinions given in courts of justice, often virtually decide questions of liberty and even of life; but he who gives such opinions without taking into account the possible influence and power of automatism and the subliminal self, assumes a responsibility which better instructed men would consider grave, indeed.

In conclusion, I would say that the fact of alternating personalities, or the subliminal self with its manifold manifestations, has a very important and practical bearing, and demands a much wider and more intelligent study than has hitherto been accorded to it by our profession.

A PLEA FOR REFORM IN CRIMINAL JURISPRUDENCE.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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In all ages and amongst all peoples, civilized and savage, so far as we have any record, the instinct of race, tribe or national preservation has led them to regard the welfare and prosperity of the people as the supreme law. No individual interests were paramount to that of the people, and personal rights were curtailed, or sacrificed to the public good. For ages this has been formulated into the familiar maxim, *Salus Populi est Suprema Lex.* And as a corollary, it has been a maxim that "the few shall suffer, or be sacrificed (if need be), for the preservation or safety of the whole;" hence, the democratic doctrine, "the majority shall rule." Among primitive peoples, this principle was carried to the extent of destroying feeble or decrepit offspring who would become a burden or hindrance to the state or tribe; and in the interest, too, we must assume, of race integrity. Among tribes, the chief decided what was best for his people, and his word was the law, to which unhesitating obedience was exacted. Ancient nations assembled their wise men, who considered all sources of danger to the people, and, conscientiously guarded against them. It remained for a twentieth century civilization, an enlightened republican government, to ignore this "supreme law,"—to give it a secondary place, and to make the protection of *property* the highest and dearest consideration; in the enactment of laws to utterly disregard the danger of race degeneration; to permit, nay, promote and accelerate the propagation of untold evils and dangers to society and the race, through the medium of heredity. That a government should—possessing the power and means to do so—prevent an increase in the criminal element, is a proposition which requires neither argument nor defense; that it should permit—nay, deliberately propagate and encourage an increase of criminals out of all proportion to population, is monstrous.

In light of the rapid and alarming increase of crime and criminals in this country, it is evident not only that there is something radically wrong in our system of criminal jurisprudence, and that our penal methods are a failure of the ostensible ends sought, but that reform has become an imperative, and immediate necessity. It is demanded by every consideration of safety to society, public morals, public economy, and especially duty to tax-payers, who bear the burden, not only of this, but of every other class of defectives; leaving out of consideration the higher ground of humanity to the unfortunate victims of heredity and environment (for such are criminals for the most part), and omitting all reference to the claims of posterity to protection. What that burden is, may be faintly estimated when we reflect upon the expense inciden-

tal to the detection, arrest, prosecution and punishment of the vast hordes of criminals, together with the pay of the army of constabulary, police detectives, law officers, judiciary and prison officials, and the maintenance of prisoners; and an idea of the magnitude of the danger threatened and constantly augmented, may be gathered from statistics.

According to the last United States census (1890), there were, in 1850, 6,737 prisoners in the United States, or one to every 3,442 of the population. In 1890, there were 82,329 prisoners, or one to every 757 of population. While the population of the United States has, in four decades, increased 170 per cent., the prisoners have increased 445 per cent. The number of criminals at large, evading arrest or unknown, is to be added to this. At the present ratio of increase, it will be a matter of very short time when the criminal will outnumber all other elements of population.

Nothing could testify more emphatically to the inadequacy of our system to meet the requirements than these figures, nor appeal more forcibly for reform; nor could anything illustrate more fully the needs of prophylaxis against hereditary criminals.

With such facts before us, it behooves a rational people to inquire into the causes that lead to such disastrous results; to ascertain wherein lie the defects in our system of jurisprudence whereby these things are made possible; to ask what are the factors concerned in this production and great and rapid multiplication of this evil, and to seek, by every legitimate means, to arrest it.

Beyond doubt, heredity and environment are responsible for a large share of it; the laws regulating marriage are sadly deficient, and licensing the sale of liquor as a source of revenue to the State, is another evil, next in order of consequence and potency; and I believe it can be shown also that the *execution of our penal methods operates to contribute to the ever swelling hordes of criminals*, rather than to checking or diminishing it, as I will endeavor to show.

The system of criminal jurisprudence in this country appears to be founded on the sole idea of revenge, and *punishment* to be the end and object of all penal statutes. And this, too, under the claim and pretext that it is justice. I can not see that there is the remotest connection between punishment for crime, and justice; there is not an element of justice in it. If a man slay you, in what way are the demands of justice satisfied by his execution? What satisfaction is it to the widow and children left destitute by your death? Or, if a man fire my house, wherein is "justice" satisfied by sending him to prison to labor? In either case it is not justice—it is revenge; and who gave the State the right to take vengeance? Nor is "justice" the aggrieved party, it is I—or your family—who should be satisfied. Justice and equity are synonymous, and contemplate *restitution*, to make amends; and the ends of justice would be better served were the murderer or incendiary stripped of his possessions for the benefit of those robbed by his hand. And where the State metes out punishment to a man for crime committed under the influence of liquor, it is worse than a farce to call it justice; it is the rankest kind of injustice. The State licenses the sale of liquor, deriving revenue thereby. It thus aids and abets the saloon-keeper to tempt the young, the weak, the reckless and the unwary to put that into their stomach which robs them of reason for the time being, and deprives them of the power to resist an evil impulse. Murders have been committed unconsciously by young men under the mania of their first intoxication. The State hangs or imprisons that man, robs his wife and children—deprives them of their bread winner and of bread—and overwhelms them with disgrace—maybe brings them on the hands of the tax-payer—as inmates of the poor farm, and calls it justice! What a cruel wrong! What a burlesque on justice! The justice in this case would seem to demand restitution to the imprisoned man for blighting his life, and the State is accessory before the fact;—and the one so put to death—the State should make restitution to his widow and orphans. The evil of the day and generation is the saloon.

But, so long as newspapers are run to make money, or, as is often the case, subsidized by the whisky ring, it were idle to preach against it; they will never aid science in any reform in the interest of truth, humanity or religion. No paper can be found with the honesty and independence to advocate any measure of reform—or to disseminate any truth in the interest of humanity that conflicts with that interest.

The failure of our system to either protect society or diminish crime is in a measure due to lack of vigorous enforcement of the laws; but principally it is due to defects inherent in the laws themselves.

Under the existing system, in order that crime may be appropriately *punished*, crimes are classified and a penalty affixed to each. One great difficulty is that criminals are not classified also. The fact that a murder, for instance, was a first offense is not considered. There is a penalty for murder (death by hanging) and all murderers, old and young, male and female, good family or bad, penitent or indifferent, first offense or fortieth, must expiate it to satisfy the ends of justice.

There is a penalty for homicide, and all homicides must conform to the penalty; there is no qualifying circumstance, except *the degree of the offense*. It is simply left to the judge to determine the crime, classify it, and looking in the book find the companion piece to it, the penalty—and fit the one to the other, and to the jailor or sheriff to execute the penalty. The young boy for his first offense committed, it may be in resentment of an insult and from an impulse beyond control or from fear of his life, or what, unfortunately, is most frequently the case, while *under the influence of liquor;* or, if a theft committed from want, or temptation, or what not, is thrown first in jail to await trial. There he is surrounded by a vicious, brutalizing environment, huddled, perhaps, with a lot of filthy negroes and Mexicans, all hardened criminals; in fact, made to breathe an atmosphere fatal to every instinct of self-respect and calculated to crush out every atom of manhood. When brought to trial the fact that it was his first killing, that he was drunk at the time and for the first time in his life, and had not even a knowledge of what he had done; that, realizing the situation he is deeply penitent and would give worlds to undo it and make restitution—does not in the least qualify the offense, except, perhaps, it may secure for him the lightest punishment *that goes with that kind of crime;* it is a definite term and carries with it eternal disgrace, social and business ostracism and *disfranchisement*. Could anything be more unjust? Why, what would be thought of a doctor, for instance, who, having all his cases diagnosed for him, should treat every one of a class exactly alike with the same

dose; and without regard to age, sex, temperament or environment? Here is a case of fever; here is a formula for fever for all comers. Here is a case of rheumatism; here is the treatment for rheumatism for all ages, sizes, sex, color or "previous condition"—*the book says so.* Failure would be a foregone conclusion. And so with our classification of the criminal; it is a lamentable failure.

Again, by existing methods the State essays to purify the morals of society by perpetrating a shocking crime. The law says "thou shalt not kill," and forthwith gives us an object lesson in killing and in cold blood!

The pretext for putting a man to death to protect society can only apply to the habitual or born criminal; and the ends can be accomplished by a means less revolting. Surely there could be no such pretext urged in a case like that of Dr. Jones, a man who lived a life of usefulness till past 50, a respected citizen, prominent, indeed, in business and society. He had been president of this society. A circumstance occurred which so exasperated him that he felt compelled, to vindicate his honor, to take the life of the man who had injured him, as he thought. Although justified in his own mind the law held it to be murder, and he was sentenced to death (a subsequent trial sentenced him to twenty years in the penitentiary). Because of this one act, would this man have been held to be a danger to society which must be eliminated? And even with regard to the natural criminal, is not the question of responsibility to be considered? Take Holmes, Guiteau or Prendergast, acknowledged dangers; they could no more change their nature than a leopard could change his spots; it was born in them to kill. Should they, morally insane, confessedly, be cruelly put to death for responding to the promptings of a natural predisposition? Why not lock them up securely, as we do man-eating wild beasts in captivity? Because they might or would kill if they had liberty, do we feel called upon to shoot them?

But heredity and environment, as potent as they are, and as prolific, are not the only factors of increase. I believe that it can be demonstrated that the existing conditions and methods of our system not only fail of their ends, but operate to defeat them and become a tributary to the growth of crime and the multiplication of criminals. Take an illustration: A boy of 17, small for his age, was wanted for suspected complicity in a burglary. He came of respectable parentage, among whom crime was unknown; but owing to environment he grew up to be regarded as a bad boy. The policeman was afraid of him and attempted take him by stratagem. He employed a chum of the lad to call him to the door at night, when the policeman sprang upon him out of the darkness, and without a word, covered him with a pistol. The boy, in fear of his life doubtless, and by instinct of self-preservation shot and killed the policeman. For this he was sentenced to seventeen years in the penitentiary at hard labor. At this writing he has served eight years; has a record of uniform good behavior, has given every evidence of repentance and a desire to lead a correct life; the end and object of his incarceration has been accomplished; he is "reformed," he has been *punished*. But, no; his sentence was for a definite term of years; that's the law, and he must serve nine years more, when, better or worse, he will be released, deprived of every right of citizenship, *sans* pride, *sans* hope, ambition or self-respect, his father's name dishonored, his widowed mother's heart broken; the best years of his life, all of his youth spent in a felon's cell; what a mockery his "liberty" will be. What will he have to live for? Is it likely that he will become a moral, upright and useful man?. Or will he, feeling that he has been unjustly punished, that the State is his enemy and mankind his natural foe, his hand, like Ishmael's against every man, will he go to swell the ranks of the hardened and irreclaimable criminals? Who can ask?

This case will show the absurdity and the worse-than-uselessness of the "definite sentence" system. It makes criminals rather than cures them.

The inadequacy of existing statutes to meet the requirements is an exceedingly grave matter. Not only that they fail to repress crime and protect society and operate to increase it, but the want of confidence on the part of the public engenders a feeling of insecurity which drives them to the commission of those acts of lawlessness for which they are so severely but unjustly censured. Self-defense and the protection of home are the strongest instincts of human nature. The people of Texas are as loyal and law-abiding as are to be found anywhere; but when they realize that the methods of dealing with the rapist and the murderer and the double crime, rape *and* murder (and that, too, most frequently, of tender young children), are not effectual to put a stop to it, even when the law is swiftly executed, but, on the contrary, that an execution, even in the horrid form of the stake, actually appears to *incite others to the crime*, it simply drives them to madness. The horrible execution of Henry Smith at Paris must have been known to every negro in Texas, but it did not deter another negro from a committing a similar outrage a short time after at Tyler, and he met a similar fate. Nor have the several prompt hangings for rape been attended with more salutary results. *Rape is notoriously on the increase*, not only in Texas but in other States, and lynch law is brought into execution.

In support of the assertion that an execution incites others to crime instead of having a deterrent effect upon the evil disposed (such is the theory of our system—"to strike terror in his soul" and awe him into good behavior), I refer to statistics to show that in England, of 167 criminals condemned to death, all but three had witnessed executions. May this not be a psychologic problem not yet unraveled by medical science? Our knowledge of hypnotism is yet crude and imperfect. May it not be that persons, especially the ignorant, witnessing so shocking and impressive a sight receive, unconsciously, the "suggestion" to murder? What is it that prompts a person to do, against his will and intent, an act which he knows he should not do, and for which he will speedily be put to death? Poe calls it the "Imp of the Perverse."

But the worst feature connected with the subject, and that which drives the people to desperation is, almost as many offenders escape as are caught; and when they are caught, there are so many delays, appeals, writs of error, feigned insanity, etc., that the feeling of insecurity is intensified to the last degree, and the people take the matter in their own hands. They do not understand the reasons why, but they recognize the fact that the laws can not be depended upon for the suppression of crime and the protection of their families, and their acts are a spontaneous though very crude and primitive effort at a remedy.

I am inclined to believe that the fountain head and source whence flows this great evil, lynching, can be traced to the unwise policy that obtains of paying legislators day-laborers' wages. In Texas the per diem is $5, and after sixty days it is reduced to $2. It is hardly to be expected that such remuneration would command a very high order of law-making talent. Statutes enacted by men who can afford to leave home and business for $2 per day, who know nothing of the requirements of sanitary legislation, and do not want to be told, and could not fairly comprehend the subject if they were told, are apt to be defective, ambiguous and conflicting, and so afford grounds for endless "errors," protracted trials and tedious delays. With the exception of a respectable per cent. of really able men—lawyers, for the most part, who have political aspirations or some reason for serving, other than the mere pittance of pay, and who really make a pecuniary sacrifice in so doing—the legislatures of many States are composed of average representative citizens, farmers, merchants, mechanics, or else young "limbs of the law;" and this class is in the majority. It is this element that defeats all attempts at reform; who ridicule the efforts of the medical profession to secure improvement in the medical practice acts, and who mocked and insulted the noble Christian women of whom Mrs. Gardner tells us in the *Arena*, in their efforts to amend the "age of consent" statutes. It would be difficult, I apprehend, to make this sort realize that their ignorance, bigotry or, most of all, conceit that makes them refuse to listen to any suggestions of reform in accord with science, and intolerant of advice, is the real and first cause that leads to lynchings. They are loud to denounce it, and without a suspicion of the truth, they serenely set about to enact statutes *to punish the lynchers*.

Indeed, may it not be that herein lies the one great cause of the inadequacy of our system? In the enactment of the criminal and health statutes the requisite knowledge is not brought to bear. The making of all our laws is in the hands of men who make no pretensions to science, and they are notoriously averse to being advised.

Science is applied knowledge. The most civilized races are the most scientific and progressive. We live in an age of enlightenment and advanced civilization. Never, at any period of the world's history, have the facilities for the acquisition of knowledge and the dissemination of information been so great in every department of life, and yet in many respects, and especially in that pointed out above, vital to society and human happiness and well-being, man fails to profit by experience and neglects to make use of the knowledge gained.

Knowledge, acquired in whatever way, is applied in the various arts, and made subservient to man's wants. In enlightened governments there are heads of departments whose function it is to gather and formulate the knowledge bearing upon their respective interests. This is true of everything except man's most vital interests—his health and well-being and the preservation of a healthy standard of race. In this great country there is no department of public health, and State medicine is a nullity. The vast store of knowledge gained by laborers in the field is not utilized in framing laws for the protection of the public health and morals and race preservation.

On this head Judge Benjamin Abbott, in apologizing for the jurists and the want of progress in the jurisprudence of insanity (Ref. Bk. Med. Sci., p. 122), says: "The rude division into 'idiots' and 'lunatics' of two centuries ago survives in jurisprudence to-day. . . . Jurisprudence has no peculiar methods of studying the subject, but has been accustomed to follow the course of medical science, and to accept, sometimes only after long hesitation and inquiry, the results which skillful and experienced alienists have united in declaring established."

Jurisprudence has not studied the subject, yet will not accept the conclusions of those who have; here is a confession of bigotry and intolerance.

Judge Abbott here uttered a pregnant truth. It is the key to the problem, why our criminal and insanity laws are a failure.

To confess that the jurisprudence of insanity has not been revised in two hundred years, because jurists will not accept the conclusions of scientific investigators in this field, when in the meantime insanity has been studied in all its phases, and subdivided and classified till now there are nine forms of idiocy and six forms of madness known to alienists, would indicate that one or other of the forms of idiocy or mania had seized upon our law makers. Our statutes belong to past ages.

Granting that the system is a failure, what should be done to remedy it?

The thinking members of the profession are being rapidly converted to the belief that *crime is a disease*; that habitual criminals are *sick persons*, and that their condition calls for a more enlightened method of management. They know that many, if not most of them, are subjects of heriditary transmission of vicious temperaments, and are victims of vicious environment. Sooner or later a change must come, precisely such change as has taken place with insanity and inebriety. It has not been very long ago that drunkenness was regarded as a criminal offense, or rather, as a misdemeanor,—and was punished; nor since the insane were regarded as monsters,—or "possessed of a devil" that was to be exorcised only by blows and by straight-jackets; nor since the poor demented or idiot and the harmless maniac were, by law, burned as "witches," an act for which civilization is not yet done blushing. Opinion has changed radically, as regards these unfortunates; and with it, the system of dealing with them. The insane, and in some States, the inebriate now find repose and tender care and rational treatment in the great eleemosynary institutions of an enlightened age; and so opinion is fast changing with reference to crime and criminals, and the mission of science is to bring about a corresponding change in their status and management.

Professor Flint, in his paper, says (*N. Y. Medical Journal*, Feb. 15, 1896):

"Crime is a disease of our social organization. It is true that it is ineradicable, but it may be restricted within much narrower limits than at present exist. Crime calls for intelligent and scientific treatment. While crime can not be abolished, all criminals are not hopelessly affected with crime. . . . Crime may be a constitutional disease, as in the born criminal, or it may be due in individual cases to surroundings, teaching, or example—a sort of contagion. It has been abundantly shown that criminals may be divided into two great classes, the curable and the incurable; but the disease which we call crime has nearly as many phases and varieties as are presented by the nosological catalogue. Society needs the aid of competent men to undertake the task of separating the curable from the incurable—to restore the former to usefulness, and to protect our social organization against the latter. Jurists, so-called law-givers, and those who execute the law,

have failed. In my opinion, the only hope is in the medical profession."

The problem is, *how can these views be impressed upon those who are entrusted with the enactment of the statutes?* The utter failure of the State Medical Association in Texas to awaken in the minds of legislators a just appreciation of the dangers attending the indiscriminate practice, or the unrestricted sale of nostrums deleterious to the public health, gives but little assurance that anything the medical profession of this State might bring before them upon this great subject, would receive more respectful consideration.

State medicine is the application in the aggregate, of the principles of medical and sanitary science to the prevention, cure, mitigation or relief of evils which affect the social body, and the prevention of those evils to posterity. It bears the same relation to the state or society that the individual physician bears to his clientele; and embraces measures of prophylaxis against future ills as against existing evils. For illustration, any measure calculated to improve the race, restrictions upon marriage limiting the privilege to the fit, or castration of natural criminals, or insane criminals, or the criminal insane, to cut off succession as here advocated, is as much within the scope of its beneficent functions as is quarantine against disease; indeed, the entire treatment of criminals, as hereinafter proposed, comes most appropriately within its province; and when we shall have succeeded in getting a department of public health, the first step will have been accomplished. The state owes no higher duty to posterity than to protect it against a multiplication of those evils we now deplore, and are ineffectually battling against.

Medicine has ever been characterized by humanity and benevolence. The profession do all in their power to relieve suffering. Our grand hospitals and asylums are monuments to the benevolence and unselfishness of medicine. Yet it seems to be, after all, a false philanthropy, as it enables the afflicted ones to live on and beget more children for the next generation to care for. Thus evil comes out of good, and our best intentions react to the ultimate detriment of society. By practical charity, alms-giving, and the tender care for the defectives and diseased, the operation of nature's laws is defeated, and the unfit survive and breed and multiply like flies.

On the subject of marriage, Judge C. H. Reeves of Plymouth, Ind., in a work called "The Prison Question," the most logical exposition of the subject I have ever seen, says:

"In regulating marriage, the law says that none shall marry within the third degree of consanguity, and in some States the fourth, because marriage between near blood relations is likely to produce offspring deformed or diseased, physically and mentally. Insane and idiots shall not marry, because they can not make a contract, and because of hereditary tendency to produce idiots and insanity. It makes it a crime to marry in any of these cases. In this it aims to prevent degenerate offspring and protect individuals and society against the evils that would attend such offspring. . . .

"But if the vilest mortal that can live—one not in these classes—sees proper to marry, the law issues the license for the asking, taking a fee, makes a record, and leaves the offspring and society to shift for themselves in the best way they can. The confirmed inebriate, the weak-minded and semi-idiotic, the confirmed criminal, the offspring of the half-witted and insane, if lucid at the time—the incurably diseased, the scrofulitic, the syphilitic, the hereditary pauper, the depraved and reckless—even paupers while in the poorhouse, and criminals while in jail, are in every way encouraged, given license, and are protected by the law. No thought is taken for the unfortunate offspring, nor for the body politic or social, and the irreparable evils that must fall upon all. The church adds its sanction, and its ministers aid in making these civil contracts, by performing the ceremony with benediction and prayer. .

"If it is wise to prohibit polygamy, marriage between near relations, between the insane and idiotic, because of heredity and transmissions of evils, it is equally wise to prohibit it in all cases where like evils may follow. If the law has the power to prohibit and punish violations in one case, it has equal right in all others. . . .

"There is an endless procession of children from all these sources coming into the mass of population to live lives of crime, immortality, want, suffering, misfortune and degradation, transmitting the taint in constantly ever widening streams, generation after generation, with the ultimate certainty of the deterioration of the race, and final irreparable degeneracy. . . .

"It seems to me that there is a moral obliquity that affects the entire mass of political, social and religious leaders and teachers on the subject here being considered. When we analyze the views and actions throughout, the glaring inconsistency and unreasonableness that seems to fill them has no parallel in any other matter seriously affecting individual and the public welfare. Among the first is a false modesty, that is shocked by any allusions to the most evident and debasing facts that stare everybody in the face on all sides; that rub everybody at every turn. . . .

"The church devotes its time and energies to prove that every human body possesses an immortal spiritual body, that is liable to future torture unless it be made perfect in morals and truth, and that must be done while it remains in its mortal shell. It pleads and raves for prohibition of liquors and tobacco, for forced observance of Sunday, for forced attendance on schools, for recognition of God, Christ and the Protestant religion in the civil constitutions, and for sundry other restraints and commands, with penalties, in order to save these imperiled souls. Reformers go about the land devising ways and means to educate, civilize, provide for and elevate the ignorant, the degraded, the poverty stricken that pervade every plane of human action, and wander in and out among the people everywhere. And yet these, with general society added, hold up their hands before their faces in horror, if some honest soul who has truth for a guide, calls them to look and points them to the source of the evils they are battling with, and tells them they are responsible for it all, for the law is only their united will in statutory phraseology. That it is the result of their voluntary blindness and false conception of civil, moral and religious duties. That they are seeking to deal with evil conditions alone, instead of the causes of them, and while trying to mitigate the evils in the results, are supporting and enlarging the causes. That on every other plane of action they recognize and deal with the causes: but with men and women they ignore the causes and battle with results alone. That they regard domestic brutes as of more importance than they do human beings."

Doubtless Macaulay had this condition of society in mind, when, forty years ago, he predicted the disintegration and downfall of the American Republic. Writing to Henry S. Randall, in 1857, he said: "I have long been convinced that institutions purely democratic must, sooner or later, destroy liberty or civilization, or both. Your constitution is all sail and no anchor. Either some Cæsar or Napoleon will seize the reins of goverment with a strong hand, or your republic will be as fearfully plundered and laid waste by barbarians in the twentieth century as the Roman Empire was in the fifth, with this difference—that the Huns and Vandals who ravaged the Roman Empire came from without, and that your Huns and Vandals will have been engendered within your own country, by your own institutions."

It would seem that a rational people, with such facts before them, for instance, as those furnished by Dugdale's history of the Jukes family, from whom 1,200 criminals descended, would profit by it and take steps to close the flood gates of evil. And the Jukes case is not an exceptional one by any means; there are thousands such; they exist every day, everywhere.

The magnitude of the evil and danger resulting from our criminally lax marriage laws is simply

appalling. Yet few ordinary citizens, those who pay the taxes, have a conception of it, or realize the extent of the cruel wrong done them by permitting it.

An intelligent comprehension of the subject would, therefore, indicate that the first step in needed reform is State regulation of marriage with a view to the arrest of descent of crime by hereditary transmission of the tendency. And dealing directly, then, with the crop on hand, it is suggested that punishment, as such, as a penalty, should have no place in a civilized code. It is permissible only as a feature of discipline incidental to reform; that as criminals are divisible into the two great classes, the curable or accidental criminal, and the habitual or incurable of Lombroso, the end and object of penal enactments should be the *cure* of the *curable*, the reclamation to usefulness of those who are amenable to it, and the *elimination of the incurable*. To this end, therefore, a classification of all criminals is necessary.

Classification can only be done by medical men. The entire subject comes legitimately within the scope of State medicine; here, indeed, it finds its most appropriate field.

When the character of the crime has been determined by the court, it would seem to be in accord with the requirements of the case and the dictates of an enlightened humanity, that there should be medical men to *diagnose the criminal*, and prescribe the course which, in their judgment, is best calculated to meet the demands. If it be one of the curable class, the treatment, consisting of restraint, discipline, hygiene, education, environment and healthy labor, should be such as to induce a determination to never offend again. Pride and self-respect should be fostered, for they are the highest incentives in life to good behavior. The term of imprisonment should depend upon the progress made in reformation; on good behavior—the culprit made to realize that when he gives evidence of fitness to be trusted with his liberty it will be restored to him. And primarily he should be lifted above the environment calculated to debase him in his own mind. The incurable—the born criminal of Lombroso—should be dealt with as a permanent enemy to society, and the first aim in his case, after sequestration, should be precautions against a progeny; to cut off his race. When a man has been diagnosed as a natural, *i. e.*, an irreclaimable criminal, twice convicted of any felony, along with the forfeiture of liberty for life and all other rights, he certainly should be deprived of the right (and the power, should chance permit) to inflict a progeny upon the next generation. Can anyone give a single reason why this right should be respected when all others are taken away? I think not. The strange veneration people seem to have for *those particular possessions*, which induces them to plead that they be spared even when every other right has been forfeited and taken away, is the last remnant of the old Phallus worship; a superstition of the fifth century.

Capital punishment is becoming more and more abhorrent to thinking people, and is being very generally condemned by medical writers as barbarous, useless and unjustifiable; and castration as a substitute therefor is rapidly growing in popular favor. Much of the prejudice that existed against castration is disappearing under the light of reason. Indeed, it seems to me that there is every reason why capital punishment should be abolished and isolation and emasculation substituted; and the fundamental principles of justice demand that, where possible, restitution should take the place of imprisonment. It is true, privation of one's liberty might be called punishment—it is so, incidentally; but let it be done for the purposes of reformation and for the improvement of the morals of society and not of revenge—miscalled justice. Corporeal punishment never made a school boy good; and the morals of a community can never be purified by a system of punishment entailing eternal disgrace as penalty for misdeeds. The sense of injustice arouses resentment and stirs the worst element in one's nature.

The time has come and the occasion demands—if we would make an effort to preserve the integrity of our race and the safety of the republic, when the medical profession must look at this question from the higher standpoint of guardians of society and conservators of the public well-being, and none the less as trustees for posterity. It should be insisted that the voice of science be heard; that the great truths revealed by study and research, by laborious investigation, experimentation and compilation—truths vital to the dearest interests of mankind should be utilized in medical and criminal jurisprudence. Our entire system needs to be recast along broader lines, and made more comprehensive; remodeled and adapted to the changed conditions of a 20th century civilization. As at present constituted it deals with results alone, and utterly ignores causes. We concern ourselves with, and can not solve the problem of what to do with the criminals of this day and generation—without a thought toward, or an effort to close the avenues through which pour in ever swelling tides of the evil we vainly attempt to remedy.

Sisyphus, condemned to eternally roll the stone, had no more hopeless, endless task than we are now engaged in; nor the Danaides one more impossible of accomplishment; it is as irrational as the attempt to purify a sewer by throwing disinfectants into the outlet. The helpless, worthless, vicious and dangerous come faster than love, philanthropy, religion, science and law can care for, reform or dispose of them.

Doubtless, by an organized effort on the part of the two learned professions, medicine and law, Congress can be awakened to the necessity of taking steps to make available sanitary knowledge in the jurisprudence of medicine and crime; to create a department of public health and hygiene, whereby such knowledge can be disseminated and made to reach and influence legislators, however unwilling.

While we may never be civilized up to a system of scientific breeding of peoples (as we do our stock), it unquestionably lies within the scope and power of State medicine to eliminate much that is evil, and bring about great improvement, even in the next generation, in the physical, moral and intellectual status of society. And chief among the agencies effective to this end will be State regulation of marriage, and sterilization. This is the mission of rational medicine; to the accomplishment of which the profession should address itself, with the conviction that duty requires it, true philanthrophy dictates it, policy suggests it, and it is demanded by every consideration of justice, mercy and humanity.

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SOME EXPERIMENTS ON RABBITS MADE WITH A VIEW TO OBTAINING A STUMP FOR THE ACCURATE FITTING OF GLASS EYES.

Read in the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY J. HERBERT CLAIBORNE, JR., M.D.

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In *Gaillard's Medical Journal* for May, 1889, I gave a detailed account of some experiments made upon rabbits with a view to obtaining a better stump for the fitting of glass eyes. In those experiments I planted sponge and cotton in the scleral cavity and sponge in the capsule of Tenon. The results of those experiments were negative. In experiment No. 1, the planting of sponge in the scleral cavity, the edges of the scleral wound held firmly together except at the forward angle, for four weeks. At that point the sponge could be easily seen by inspection, lying snugly packed away; the stump was firm and compressible and the catgut sutures which had been used to draw the edges of the scleral wound together had become absorbed.

The entire stump was then removed for microscopic examination. There was a small zone of granulation tissue in the meshes of the sponge; numerous groups of pus cells, cocci and rod-shaped microörganisms also were found. In no portion of the fundus, nor anteriorly in the neighborhood of the wound was there any evidence of an active destructive process.

In experiment No. 2, cotton was planted in the capsule of Tenon and the lips of the conjunctival opening were brought together with catgut sutures. The healing was kind and the stump was soft and compressible. About the third week after the operation, the stump commenced to bulge and finally, at the end of the second month, pushed its way through the conjunctiva, apparently through the line of sutures, and presented a white honeycombed appearance. Microscopic examination of the sponge showed that it was completely surrounded and penetrated at its periphery by a zone of granulation tissue and lying in the central depths were numerous fine granules, silicious spicula and many isolated leucocytes.

In experiment No. 3, absorbent cotton was planted in the scleral cavity. The wound healed kindly and a soft plump stump persisted until the seventh week after the operation, when it was discovered that the cotton had broken through the sclera *above* the line of the sutures. The stump having been removed with the cotton, it was attempted to make a microscopic examination, but it was so torn in being removed that nothing satisfactory could be obtained. Granular matter, a few microörganisms and scattered pus cells were found among the cotton fibers.

These experiments seemed to warrant me in drawing this conclusion amongst others:

The implantation of sponge and cotton into the scleral cavity is probably not feasible in the human being.

I dismissed the idea of implanting anything in the capsule of Tenon, owing to the slight support given by the united lips of the conjunctival wound.

In my final conclusion I made the following suggestion:

Based, as yet, on no experimental observation or experience, I suggest glass wool and asbestos as artificial "vitreous" bodies in modification of Mr. Mules's operation.

Following the suggestions contained in this, I have planted asbestos and glass wool in the scleral cavity of rabbits, and I shall now detail those experiments and their results.

Experiment No. 1.—June 6. Blond buck. A cataract knife was passed through cornea and lens at the sclero-corneal margin and brought out opposite in the long axis of the palpebral fissure. The lens and vitreous body were removed and the iris and cornea were cut away with scissors. Volkman's spoon was used to better evacuate the contents of the cavity. Some small shreds of choroid were left. A ball of glass wool, made up of prepared modeler's wax, was introduced into the scleral cavity and the lips of the wound were closed with interrupted silk sutures, which were carried through conjunctiva and sclera.

Experiment No. 2.—Black and white buck. The contents of the scleral cavity were removed as in the first experiment, and a ball of asbestos made up with antiseptic wax was introduced into the cavity. Silk sutures were used as before. This buck took ether badly, having just had a full meal, and indeed kicked so viciously that the line of sutures were not so accurately adjusted as in the first case. It took each one some time to recover from the effects of the ether, and the blond at one time seemed moribund. The lids were not sewed together, as in temporary tarsorraphy, nor was any attempt made to dress the eyes. A double line of interrupted silk sutures was made, the smaller silk being used to close up the spaces between the larger sutures. The animals were put into a cage and allowed to run about.

June 7. Blond buck No. 1. Lids stuck together. There was considerable discharge of a lymph-like character and so much swelling of the conjunctiva that the stump could not be seen. Black buck No. 2. Lids not stuck together, but chemosis which hid the stump.

June 10. Both bucks in good condition; chemosis and discharge gone; sweet, white exudate along line of sutures. The animals remained in excellent condition.

June 19. Stitches were removed from each stump. Union of wounds perfect, but line of union quite irregular. The animals were seen at intervals of a week or two, till Nov. 30, 1895, when the stumps were carefully inspected. On examination, a black ball was found lying loose in the scleral cavity of the blond buck (subject of experiment No. 1). The line of sutures had parted and the ball had remained the original size; when broken up it appeared to have the same character as when first introduced, except that it was black externally.

In the black buck the lips of the scleral wound had fallen in and partly united. When they were opened nothing was found within. It is interesting to observe that this animal developed an abscess in the side during the last month of his captivity which, apparently, in no way interfered with his appetite or health.

These experiments were performed under strict aseptic precautions. Instruments, sutures, absorbent cotton, etc., were sterilized by boiling in a 2 per cent. solution of sodium carbonate. The asbestos and glass wool were sterilized by boiling in a normal

saline solution for twenty minutes. It was then shaped into small balls to fit the scleral cavity and dipped, by means of sterilized forceps, into boiling modeler's wax, which had been thoroughly sterilized previously by repeated boilings. After the balls had cooled the superfluous wax was removed from the balls, leaving the cores covered with a thin film that was required to keep the asbestos and glass wool in the spherical form. The hands of my assistant and myself were thoroughly disinfected after the manner at present in vogue, and a solution of bichlorid of mercury (1-3,000) was used to disinfect the conjunctival sac of the animals as well as for an irrigant during the operations.

This work was done in the Physiological Laboratory of the College of Physicians and Surgeons, New York, and I am indebted to Dr. R. H. Cunningham, of that department, for his assistance, both in the preparation of the materials used and in the performance of the operations.

Alfred Graefe of Halle first proposed and performed the operation of evisceration of the eyeball. He did it chiefly with a view to cosmetic effect in the fitting of glass eyes. This operation can scarcely be said to have much advantage over enucleation, since it leaves behind the crumpled sclera in addition to the muscles, fat and conjunctiva of the orbit. Since the glass eye is a concave shell fitted into a concavity, the grasp on the orbital tissues must be chiefly at the edges of the shell. It was supposed that the crumpled sclera would fit into the concavity of the shell, and thus assist it to move in conformity with the movements of the orbital tissues. This occurs only to a limited degree, and when one considers the fact that the etiology of sympathetic ophthalmia is not yet definitely determined, it seems a questionable procedure to leave so much of the globe behind.

It is not to be forgotten that the operation of evisceration is indicated, according to its author and advocates, in those cases in which no malignant neoplasm, iridocyclitis or sympathetic ophthalmia exist. Nevertheless, I hold that it is not an ideal procedure to leave in the orbit a crumpled mass of hard, unyielding tissue in which the ciliary nerves are squeezed and bitten by cicatricial contraction.

This operation has been popular in Halle chiefly; to some extent on the continent of Europe in general, and to a very limited extent here. In England it has been modified by Mr. Mules of Manchester, who proposed the introduction of glass balls into the scleral cavity after evisceration. From a theoretic standpoint the advantages of this operation over simple enucleation are obvious. Good movement of the stump is achieved, for the extrinsic muscles are still attached to a firm and resistent globe, and the circulation in the blood and lymph spaces is encouraged by the persistence, to a certain extent, of the original form of the sclera. But the introduction of any hard, unyielding body into the scleral cavity can not, likewise, be considered an ideal operation. If some soft compressible substance, that would not be affected by a sojourn in the scleral cavity, and that would not burst the sclera, could be found, a classical procedure might be instituted.

The experiments which I have just detailed show conclusively that, although no serious inflammation results in either eye from the planting of asbestos and glass wool in the orbital cavity of rabbits, the line of healing will part after several months. It is probable that the same result would be obtained in the human being.

From the study of this subject the following conclusions are drawn:

1. The operation of enucleation does not leave in the socket enough of a prominence to permit of the accurate and comfortable fitting of glass eyes.

2. The operation of evisceration, while it leaves a better stump than the operation of enucleation, is open to obvious objections.

3. The operation of Mr. Mules of England is objectionable because it subjects the ciliary nerves to constant pressure between two hard and unyielding surfaces, because the glass balls are subject to fracture, and because they are difficult of introduction.

4. The implantation into the scleral cavity of some soft yielding body, which will not degenerate, which can be rendered aseptic, which will not swell by imbibition and which will not become absorbed, seems to be a rational procedure.

5. Sponge, cotton, asbestos and glass wool are not tolerated in the scleral cavity of rabbits, and would probably not be tolerated in that of man.

6. The operation of enucleation, while it does not yield satisfactory cosmetic results, is, nevertheless, the most popular and safest procedure in those cases in which the removal of the ball or its contents is indicated.

39 W. 36th Street.

EDEMA OF THE OCULAR CONJUNCTIVA.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Ga., May 5-8, 1896.

BY F. W. HIGGINS, M.D.

CORTLAND, N. Y.

One of the most constant symptoms of Bright's disease is edema. Puffiness under the eyes is perhaps the symptom that the physician first looks for in a suspected case. That to which I wish to call attention is the much rarer condition of edema of the ocular conjunctiva. Edema may occur in any locality where there is cellular tissue, often without our being able to determine just why it is so especially marked in the location where we find it.

Some time ago I was called into the country to see a patient confined to the house by nephritis, exhibiting a peculiarly marked case of ocular edema or chemosis. The invalid was a married man, 22 years old, a telegraph operator. Four years before, he had been suffocated by coal gas and remained unconscious for some hours; to this circumstance he ascribed his illness. He had been treated for albuminuria, in Michigan, for about two years, when he returned to New York State to place himself under the care of a professional relative, for whom I examined the eyes. I found the young man in bed, pale, with general anasarca, the urine loaded with albumin, and all the symptoms of a parenchymatous nephritis. He was totally blind, not, as you may suppose, from albuminuric retinitis, but from edema of the ocular conjunctiva. This had first formed a chemosis, then had increased until the raised folds met over the cornea. These swellings were red, not having the pale, translucent appearance one might expect. In each they presented the aspect of a superior and inferior fold—like distended lids. The mucous membrane was dry and appeared thickened from constant contact with the air. The lids could not be closed. One would

estimate that four drams of fluid was included in each eye.

The treatment was incisions, made, I must confess, too cautiously the first time, for my attention had never been called to a chemosis of any such extent, and I did not know what pathologic condition might be concealed beneath. The oozing of serum was slow, but sufficient to enable the cornea of one eye to be seen at my next visit. The incisions were repeated with the effect of enabling me at my third visit to examine the fundus, which I found almost filled with white patches of choroidal change, which we might call edema of the choroid.

Now a peculiar complication occurred. The cornea was no longer completely covered by the folds, and still the edematous and thickened conjunctiva prevented the lids from closing, which compelled me to give directions in regard to the cornea, to prevent damage from exposure.

I saw him no more, but learned that he had uremic convulsions, after which sight and general symptoms improved, and he returned to Michigan. Here the conjunctivæ were treated by cautery, but the patient died about three months after I last saw him.

I am not able to give any reason why the ocular conjunctiva should have become so infiltrated in this case. No iodid of potassium had been administered, or any other treatment that could induce it. There was no history of a previous affection of the eye. No discharge or symptom of gonorrhea.

This condition seems to be analogous to that of edema of the glottis. This, as we know, often arises suddenly and alarmingly, and at times without an apparent adequate cause. Max Knies[1] speaks of edema of the ocular conjunctiva, but says that it appears to be very rare.

Brecht[2] describes one case of chemosis in Bright's disease. The patient was six months pregnant when she had an attack of eclampsia, with other symptoms of acute Bright's disease. He saw her five days later, when she had detachment of the retina and chemosis. After fourteen days this had disappeared. His only explanation of the detachment and the chemosis was that they were both due to some especial tendency for the edema to manifest itself in the eye.

Professor Schiess, writing in 1870, thinks the subject of conjunctival edema has been neglected. He would ascribe all such cases as my own to preceding choroidal changes interfering with return circulation. I noticed that the retina could be seen with a plus glass in my case, but neglected to record the strength of it. According to Professor Schiess' view the pathology of my case would be that excessive infiltration of the retina and choroid first occurred, which caused passive congestion of the anterior portion of the eye, with exudation of serum and leucocytes. That there was a sub-acute inflammatory condition he would predicate from the dark red color of the mucous membrane and the thickening of the tissues. With this condition of the conjunctiva present, he would assume the presence of choroidal disease.

Since my patient had no mental symptoms there is less analogy to those cases in which chemosis has been noticed as a result of interference of the return circulation from the eye within the cranial cavity. Lawson Tait gives three cases in which after surgical operations chemosis occurred. Death ensued and section showed thrombosis of the cerebral tissues.

[1] The Eye in Its Relation to General Diseases.
[2] Arch. für Oph. xviii, 2, pp. 102.

Dr. Hunter[3] reports a case of chemosis complicating acute meningitis and refers to cases by Leyden and Bierbaum. Here the same cause is evident, that is, intra-cranial pressure interfering with return circulation.

Dr. Swan M. Burnett[4] records a case of acute chemosis which he thinks was due to neuralgia complicated with slight changes in the choroid, sufficient to hinder return circulation in some degree.

Zehender[5] refers to an acute case of marked edema of the ocular conjunctiva rapidly recovering. He is doubtful in regard to the causation. The patient had had sub-acute pneumonia a short time before and the attack came on with sneezing.

DISCUSSION.

G. E. De Schweinitz, Philadelphia, Pa.—There are cases of acute edema of the conjunctiva which may be due to urticaria, or to an idiosyncrasy to certain food stuffs, especially fruit. I also believe that some cases are occasionally the result of the administration of drugs, particularly massive doses of iodid of potassium, the ocular manifestations replacing the ordinary symptoms of iodism.

[3] Arch. f. Klin. Med. iii, p. 601.
[4] Archives of Ophthalmology, Vol. ix, p. 158.
[5] Klin. Monatsblätter f. Augenheilkunde, viii, p. 168.

EXCESSIVE HEMORRHAGE AFTER ENUCLEATION OF EYE BALL.

Read in the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY ROBERT SATTLER, M.D.
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The danger of excessive hemorrhage after enucleatio bulbi is ordinarily a matter of little concern. In most cases the application of a compress bandage or a compress applied and held in position by the surgeon or an assistant for a few moments after the operation is completed controls and averts unnecessary bleeding. That hemorrhage, so excessive and uncontrollable as to endanger the life of the patient from shock and loss of blood, can occur even after this operation so simple in technique and by common consent considered almost devoid of dangerous sequences, is supported by the accompanying reports of two cases recently observed.

In every case of enucleation of the eyeball, in addition to rigid aseptic precautions before and during the operation, irrigation of the empty orbital cavity with hot sterilized water, 1 to 10,000 bichlorid solution or biniodid solution, with the least possible traumatism, is resorted to immediately after the operation is completed. After this a compress is held against the closed lids for a short time by an assistant or a compress bandage is applied.

This is done as a safeguard against hemorrhage and possible sepsis. In those cases in which the bleeding is unusually profuse after the severing of the optic nerve and surrounding blood vessels or straining and vomiting from the anesthetic occurs during or immediately after the operation, the index finger is introduced into the apex of the orbit and firm compression against the ophthalmic artery, or its principal branches, is made until it is arrested. After this a compress bandage is applied and the patient watched for several hours by an assistant or trained nurse.

This simple after treatment, guarding against other complications and hemorrhage, and so generally adopted by ophthalmic surgeons, had always been

found effectual in my surgical practice. I have had several exceptional experiences of copious hemorrhage but all were controlled, after four or five hours, with little difficulty. In two cases bleeding continued for twenty-four hours and was finally arrested only by the introduction of hot antiseptic tampons into the cavity, secured by compress and bandage after all other measures had been exhausted. A sharp attack of cellulitis orbitæ followed, but recovery was, after its subsidence, uneventful. In another case the hemorrhage was unusually free and persisted for many hours, regardless of compression with bandage and hand. The use of hot compresses did not influence it favorably. After all other means had failed ice was introduced into the orbital cavity and arrested the bleeding. Owing to the discomfort and pain, not to mention greater liability to cellulitis, attending the introduction of ice, tampons, styptics, etc., to arrest exceptionally profuse hemorrhage, these measures are only justifiable in extreme cases. It was resorted to in the cases referred to only after all other methods had been faithfully tried and had yielded negative results and the patient had become exhausted and frightened.

Before tamponade was resorted to, digital compression had been tried repeatedly and the orbital cavity emptied of its clots many times and pressure with hand or bandage had been persistently done. The sitting posture and absolute quiet was invariably enforced. Salines and ergot administered. In these cases the hemorrhage was not arrested until tampons were introduced and compression made in addition, but there was not in a single instance any intimation of a possible serious termination. Syncope occurred several times from fright in one case, and marked prostration and cellulitis orbitæ resulted in the second case, but aside from a longer confinement in bed than is usual, never persistent ecchymosis and swelling of lids, no serious sequences could be ascribed to the operation. In none of the cases could a hemorrhagic tendency be established, either individual or hereditary, nor did the patients belong to families in which hemophilia had shown itself in remote branches. I have always believed that even in a bleeder, the hemorrhage following or attending the removal of an eye, could, with the methods of direct and indirect compression at our command, be controlled without much trouble. My experience with one of the cases I am about to describe, however, has taught me otherwise.

Case 1.—R. C., age 16. Traumatic iridocyclitis R. E., T 2. Globe painful, sympathetic irritation unmistakable and persistent. Enucleation imperative. Enucleation February 9 of right eye, at Ophthalmic Hospital. Ether narcosis. Free but not excessive bleeding during operation. Patient remained in recumbent position for three hours and was removed to his home in a carriage. Had persistent nausea after operation but vomited only once. At 7 P.M. was called to see him and found that profuse bleeding had occurred. Bandage, pillow and linen thoroughly saturated and consistent flow of blood in spite of compression, to which father had resorted. Dressings and bandage removed and orbit emptied of clots and firm compress applied and held for ten or fifteen minutes; after this a bandage and compression with the hand and large pad of gauze was kept up until 9 o'clock. At this hour it was found that hemorrhage, in spite of bandage and pressure, had continued. A hypodermic of morphia was given and for two hours he was quiet and slept at intervals. At 11 o'clock I was sent for and found the patient much prostrated, with feeble and rapid pulse. The bandage was thoroughly saturated with blood and numerous compresses had been applied over the bandage, evidenced that the bleeding had been profuse. The dressings were removed and attempt made to tampon the cavity, but the infiltration was so firm that it was not successful. Several small pledgets of aseptic gauze were introduced and compress and bandage applied and pressure made from without. He was placed in a sitting position and compression of common carotid resorted to and another hypodermic of morphia administered. The following morning I was again sent for at an early hour and found that patient had been bleeding all night and that he had been restless. During the last hour his condition alarmed his parents. He was delirious and the prostration excessive. After a hypodermic of strychnia and whisky and hot applications to the extremities, I removed the dressings and found that complete extrusion of the contents of the orbit had resulted. The picture presented was a startling one. Complete evulsion of the conjunctival sac with complete involution or rolling under of the eyelids so that it was impossible to distinguish the lid border. The swelling was so great that it resembled an exuberant, eroded, sarcomatous mass and the hemorrhage unchecked. A small tampon saturated with persulphate of iron was introduced into the gaping opening of the conjunctiva and a compress, dipped in a styptic solution, applied and held with firm pressure against the extruded mass. Compression of carotid was also resorted to but caused so much pain that it had to be abandoned. Salines were given freely and also ergot. At noon general condition was about the same. Patient as if in a stupor and very listless. Complains of photophobia of sound eye and pain in occipital region. Has taken little nourishment on account of persistent nausea. Only external compress was removed and constant pressure kept up by different members of the family. Stimulants and ergot continued. At 5 P.M. dressing removed. Hemorrhage during afternoon was unabated; patient dull and listless; face pale; feeble, rapid pulse; shrieking with pain, which was referred to head and right orbit. Full hypodermic enabled us, after a little time, to remove the dressings. It was found that greater protrusion and infiltration had resulted. Nothing could be discovered of the eyelids. The swelling was too great for the grasp of the outstretched hand but the oozing was as persistent as before. Styptic compresses were immediately applied and pressure against the bleeding, protruding mass kept up without interruption. Ligation of the common carotid was suggested, but after consultation was postponed until the following morning, as pressure seemed to control, more effectually, the bleeding. Ergot, stimulants and morphia continued.

Second day: In spite of constantly applied compression the bleeding was profuse during the night; prostration great; pulse feeble and rapid; pain in right side of head; no increase of temperature. During day condition about the same; drowsy and listless and delirious most of the time. In afternoon had chill followed by fever and pains in head more severe. Complains now of throbbing, pulsating pain in right orbit. Examination shows that bleeding continues and that swelling is greater. Cellulitis imminent. Compression applied constantly.

Third and fourth days after operation: General condition bad; circulation feeble and fever fluctuating between 100 and 103 degrees; can take little nourishment; impossible to apply bandage owing to pain; compression kept up unintermittingly.

Fifth to eighth day: Cellulitis orbitæ pronounced; at several points present evidence of fluctuation; exploration with aspirator needle fails to discover pus; fever and general prostration marked; less suffering and photophobia of fellow eye. Under an anesthetic the orbit was carefully explored, in the hope that a deep-seated collection of pus might be found, but examination was negative; hemorrhage much less and can now be controlled by compression.

Ninth day: Is much brighter and delirium has disappeared; very drowsy and complains of great pain in head; ergot discontinued.

Tenth to fifteenth day: Swelling remains marked, but no evidence of suppuration; central mass of swelling sloughing; rigid antiseptic dressing.

Fifteenth to twenty-first day: Swelling subsiding; border of lower lid visible and entire border sloughing; irrigation with warm 1 to 10,000 bichlorid and iodoform powder resorted to; general health improving; vertigo less pronounced.

Twenty-first to twenty-eighth day: Gradual improvement in general condition; subsidence of swelling. Two-thirds of border of lower lid and inner one-third of upper lid have undergone sphacelation; succeeded in replacing conjunctiva and lids for first time in four weeks; again close palpebral fissure.

The patient was a bleeder and belongs to a family other members of which had manifested a similar tendency. Only five or six months before the operation the extraction of a tooth caused him to bleed to syncope and was only arrested by firm tamponade.

Case 2.—J. C., aged 50; confirmed glaucoma, cataracta complicata, intraocular neoplasm(?); V.=0; pain excessive and constant. Operation imperative to prevent possible sarcomatous infection and to relieve pain. Is a feeble old man with evidences of general arterio-sclerosis and senile heart.

Enucleation August 26, 2 P.M.; anesthetic (ether) given with great caution; no complications and no unusual bleeding, either during or immediately after the operation. At 4 P.M. nurse noticed slight discoloration of bandage and applied another bandage and compress over the first; no complaint, no vomiting. At 7 P.M.: Nurse after attending to wants of another patient found bandage and pillow saturated with blood; pressure with hand was applied and shortly afterward bandage removed and orbit emptied of clots and firm compression with fingers in apex and subsequent iced compresses applied with hand; patient very weak; pulse feeble; under active stimulations, hot water bottles, etc., he revived and oozing continued in spite of pressure.

9 P.M.: Immediately following an attack of syncope, in spite of compression with bandage and hand, profuse bleeding again came on. Hypodermics of whisky and strychnia given; patient very weak; orbit was thoroughly cleaned out and all clots removed; firm compress bandage reapplied over both eyes and nurse instructed to keep up constant pressure over bandage.

On the following morning patient was much exhausted; pale and yawning constantly; complains of severe pain. Hemorrhage had continued during night in spite of compresses; on removing bandage the entire orbit was found infiltrated with blood, the palpebral fissure widely open and contents of orbit partially extended; the lids were swollen and edematous; attempts to arrest hemorrhage by application of artery forceps, etc., proved ineffectual. The clots were again removed, compression of carotid was also made and the orbit tamponed with styptic gauze and compress applied; active supporting measures were resorted to; saline draughts were given and ergot freely administered.

At 3 P.M.: Patient much weaker, face pallid, extremities cold; bleeding constantly in spite of bandage and pressure with hand; compression of carotid could not be tolerated, as it increased vertigo and tendency to fainting.

At 8 P.M.: Very restless and delirious. Examination showed that tampon had been forced out and infiltration of orbit much greater. It was impossible to tampon, so compress of styptic gauze was applied directly and pressure kept up with relays of nurses during the night.

The following morning, third day after operation, bleeding less but patient excessively feeble. The most active supportive measures were resorted to, hypodermically and per rectum; nausea intense.

Fourth day: Bandage not disturbed; only slight oozing; patient has no increase of temperature; drowsy and dull.

Fifth day: Aside from great prostration no complaint; from this time on his recovery was uneventful.

This patient was not a bleeder. The excessive hemorrhage was probably due to general arterio-sclerosis.

THE VALUE OF HOMATROPIN IN THE DIAGNOSIS OF AMETROPIA.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY EDWARD JACKSON, A.M., M.D.

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Its control over the ciliary muscle.—In 1881, soon after its introduction, I commenced the use of homatropin hydrobromate as a cycloplegic for the determination of refraction. At first it was used occasionally, then more frequently, and after a year or two for the majority of cases of ametropia encountered in private practice.

It was known to be less powerful than the other drugs employed for the same purpose. On that account its results were always regarded with some doubt, and where there seemed to be any especial uncertainty as to the findings made with it, it was followed by the instillation of one of the stronger mydriatics. In 1886 I published (*Medical News*, July 24) the results obtained in these cases where the use of homatropin had been followed by one of the stronger mydriatics.

"In but fifteen out of the fifty-two eyes was there any difference between the first and second results. In eight of these it was one-quarter dioptric in favor of the second mydriatic, in five it was one-quarter dioptric in favor of homatropin, in one it was (in one meridian) one-half dioptric in favor of homatropin and in another the same in favor of duboisin. In no case was the variation greater than may well be allowed for unavoidable inaccuracy of observation. In no case was the apparent axis of the astigmatism materially changed."

Since that time the practice of following the use of homatropin by one of the slower mydriatics, in cases where the results with homatropin have seemed not entirely satisfactory, has been continued and the results obtained have not been materially different.

During these fifteen years I have also been employing other mydriatics; for refraction cases in private practice to a limited extent, and for the large majority of refraction cases in dispensary work. Those habitually employed were atropin, duboisin and hyoscyamin, while daturin and scopolamin have been carefully tested in a limited number of cases. Comparison of homatropin cases with those subjected to other mydriatics has shown that the proportion of cases in which I failed to secure complete paralysis of accommodation with homatropin was smaller than with either of the others.

Mode of application.—When the above observation is compared with the relative strength of the drugs, as determined by physiologic experiments (*Transactions of the Section on Ophthalmology* for 1895, page 8), there appears the paradox that the weaker drug is the more efficient cycloplegic. The explanation of this is, I think, furnished in the different methods of using the drugs. Schell early pointed out (*Philadelphia Medical Times*, October, 1880) that homatropin could not be used in the same way as the other mydriatics, and I have from almost the first, followed the plan of repeated instillations at short intervals. A solution of from 2 to 5 per cent. was used, one drop being placed on the upper margin of the cornea every five to ten minutes until four or six instillations had been made. The determination of the refraction was completed within two hours of the instillations. On the other hand, the other mydriatics have usually been prescribed to be instilled three times daily at the patient's home, atropin in about 1 per cent. solution and the others in solutions of one half that strength. Used in this way the difference in the strength of solutions, and in the efficiency of their applications have together more than counterbalanced the difference in the physiologic action of the drugs.

It is hard to estimate how much a mydriatic solution loses in efficiency by imperfect instillation at the hands of the patient's family, but I have often seen cases in which the effect produced was less than one-hundredth of the effect properly to be expected. In my experience, therefore, homatropin applied by the surgeon is a more reliable cycloplegic than other drugs of this class as applied at the patient's home.

Notice that it is not asserted that homatropin is as reliable as other mydriatics when placed in the hands of the patient for application, and it is not asserted that homatropin is reliable unless efficiently used. There is abundant testimony in medical literature to

establish the fact that it can be so used as to be quite unreliable.

In this connection it is worth while to call attention to the difference in effect secured by different methods of making the instillation. The one commonly described, and I fear commonly practiced, is to draw down the lower lid and place the drop of solution within it. The one that I have followed in the application of mydriatics has been to retract the upper lid, have the patient look down and place the drop on the upper margin of the cornea. The involuntary rolling up of the eye that follows contact, usually causes the solution to be distributed over the cornea without any dilution. Some experiments as to the comparative effect of these two methods of instillation, which I shall report more in detail elsewhere, seems to show that the latter method is about twice as efficient as the former; that is, a solution of a certain strength applied to the upper margin of the cornea in this way, will produce the same effect as a solution of double the strength dropped in the lower conjunctival sac.

Another matter to be considered in this connection is the strength of solution necessary to produce complete paralysis of accommodation when efficiently employed. Undoubtedly it is very much less than we have been accustomed to prescribe for home use. Not that we have been in error in prescribing the stronger solutions, but that a large proportion of their strength was only needed to lessen the effects of imperfect application. As bearing upon this point, attention may be called to recent reports on the usefulness of weak solutions of scopolamin. Thus, Murrell (*Annals of Ophthalmology and Otology*, 1895, p. 478) finds repeated instillations of a one-tenth of one per cent. solution of this drug efficient in suspending the accommodation.

Therapeutic influence.—Although not bearing directly upon the diagnosis of ametropia, a quality which should powerfully influence our choice of a mydriatic for this purpose, is the power of allaying irritation and quieting the disturbance of the ocular circulation and the reflex or remote effects proceeding from eye-strain. Certainly in a very large proportion of cases of eye-strain we are justified in resorting to a mydriatic, and securing complete temporary rest of accommodation as a therapeutic measure. The temporary action of homatropin would seem to make it, for this purpose, markedly inferior to the stronger and slower mydriatics. I have in former years, on this account, used the latter in a considerable proportion of private cases, but this proportion has grown smaller, and such use of the slower mydriatics is now confined to the very marked cases of choroidal and retinal disease with considerable organic change. The interruption of morbid action within the eye, particularly that of spasm of accommodation, is as complete with homatropin as with the other mydriatics. If the instillation of the drug be made after the middle of the day, or when made earlier if one or two additional instillations be made in the latter part of the day to sustain its effect, complete abeyance of accommodation is secured until the following morning. The effect of this upon such symptoms as headache, nervous tension, spasmodic closure of the lids, etc., is very marked. Careful avoidance of any attempt to use the eyes on the day following the employment of homatropin will secure the benefit of the interruption of morbid action until the patient has fully recovered the power of accommodation.

Here is a marked advantage over the slower mydriatics, especially atropin. There is no question that with the slower mydriatics we secure as complete rest of the eye, and for a considerably longer period. But this is followed by a longer period of weakened accommodative power, during which it is often very difficult, or quite impossible, to prevent the patient from making some effort; and in the eye-strain resulting from such effort much of the advantage gained by previous absolute rest is lost. Unless, therefore, there are marked tissue changes whtch require time for their resolution, it seems to me that the therapeutic effect of homatropin is to be chosen rather than that of the slower mydriatics.

Brevity of action.—One of the great advantages of homatropin is the brevity of its action. How great an advantage does it possess in this direction? We read of ability to use the eyes after the use of duboisin and hyoscyamin within a week; or after the use of a weak solution of scopolamin, according to Murrell, "you can safely tell your patient that he will be able to read in seventy-two hours." But this does not mean that complete recovery has occurred within that time. It means that after such an interval the patient can, with undue effort and the risks of strain that have just been discussed, make some use of the eyes, while with homatropin, within the shortest period mentioned, the restoration of accommodation will usually have been complete.

It is well within the facts, to state that with homatropin the usual time required for recovery is less than one-half that required after hyoscyamin, duboisin or scopolamin, and less than one-third or one-fourth of the time required after the use of atropin. I have seen a few cases where recovery from homatropin was quite complete within twenty-four hours; and I do not doubt that more have occurred among a larger number of patients not seen at the expiration of that time, and giving the history of recovery after such an interval. In quite a large proportion the recovery is complete within forty-eight hours, and in more than 90 per cent. the accommodation has entirely returned within three days. This brevity of action removes the chief objection against the use of a mydriatic for the determination of ametropia, and to discuss the general question of the use of mydriatics as though atropin were the only drug of the class worth considering, is to-day very much out of date.

General symptoms.—Another objection to the use of mydriatics has been the possibility of symptoms of general poisoning. We have all seen these general symptoms, and occasionally have found them very annoying and quite alarming to the patient's friends. The patient is not usually much worried over the incoordination of thought and movement produced by one of the mydriatics. There can be no question that the danger of such symptoms is less with homatropin than with any other mydriatic, used so as to be equally effective. Indeed, my notes show that only about once in four hundred times was any constitutional effect noticed by the patient, although in nearly all cases there was a perceptible change in the pulse rate.

The most marked case of such constitutional effects from the use of homatropin that I have seen occurred recently, in a man aged 38, suffering from headache and neuralgic pain about the eyes from low hyperopic astigmatism. At the completion of the measurement of his refraction he staggered quite perceptibly in

walking, and said he felt as if he had taken several drinks of whisky. Reaching his place of business, his partner at once noticed the disturbance in his condition and took him into his private office, where he lay for three or four hours, at the end of which time he had recovered. At the height of the intoxication there was a tingling all over the body, extending to the ends of the fingers and toes. The patient was a nervous man; he expressed relief from the use of +0.37 convex cylinder before each eye—said his eyes had not felt so rested in three years—but he gave no history of especial drug susceptibility. The amount of the drug applied in this case was about 1-5 grain. While the constitutional symptoms were decided, they were still slight in contrast with those more frequently observed after the use of other mydriatics, and doubtless could at any time have been completely removed by a small dose of morphin.

Other considerations.—The greater cost of homatropin, and the additional labor entailed, when the surgeon must make the applications of the drug, are important objections to its use in dispensary work, but are hardly worthy of consideration in private practice. Indeed, we have found it entirely practical to use the drug in a considerable number of cases in our dispensary work at the Philadelphia Polyclinic.

As to the danger of precipitating an attack of glaucoma, in an eye already upon the brink of such an outbreak, there can be no doubt that this is shared by homatropin, with the other mydriatics. But its comparative feebleness and brevity of action correspondingly diminish the danger of permanent harm from such an occurrence. In any case the dilatation of the pupil, which is the dangerous effect of the mydriatic, in threatened or actual glaucoma, can be promptly reduced by the use of eserin, which, in solution of one-sixth strength, neutralizes the effect of homatropin. And even if the increase of tension be unrecognized, the rapid diminution in the influence of the homatropin has, in reported cases, prevented permanent damage.

Homatropin has been credited with the frequent production of conjunctival irritation. This, I think, is an error. In my experience, in some 2,000 patients I have never seen it produce the conjunctival inflammation similar to that occasionally witnessed from the use of other mydriatics. But in almost every case in which it is used to secure complete paralysis of the accommodation it does cause a temporary hyperemia, involving to some extent the vessels of the conjunctiva, but more particularly those of the sclera and the pericorneal zone. This hyperemia commonly disappears by the time the full effect upon accommodation has been produced, and I have never seen it last more than a few hours. It is unattended by smarting or other evidence of inflammation, and seems to be of the same nature as the temporary local flushing I have pointed out as occurring after the hypodermic use of the drug. (See *Med. News*, July 24, 1886.)

Briefly, to summarize, the points that I bring before you for discussion are:

That homatropin, properly applied, is an efficient, reliable mydriatic, capable of producing complete paralysis of accommodation, and possessing the therapeutic influences for which a mydriatic is indicated in cases of eye-strain.

That, as compared with other drugs of the class, it is least likely to cause general poisoning or local harm by glaucoma or conjunctival irritation, and that it entails upon the patient the shortest period of inability for eye work.

SOME INTERESTING POINTS PERTAINING TO REFRACTION.

Read in the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

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It is a well-known fact that the curved, colored, protective glass has the effect of a concave lens. The surfaces are supposed to be parallel. A short while ago, while teaching one of my private classes, I decided to have the effect of such surfaces determined, both by mathematics and by the experiment of having such a glass ground. Let the convex surface of such a body have a six-inch radius of curvature and the concave surface have radius of five and seven-eighths inches; the surfaces being concentric are one-eighth of an inch apart and parallel. "The mathematical formula would be: $(n-1)[(1\div R)-(1\div R')]=1\div f=.6[(1\div 5\tfrac{7}{8})-\tfrac{1}{6}]=1\div f=1\div 0021286$, therefore f=470 inches, and the lens is divergent. Hence if a plain glass is bent around a cylinder it results in an astigmatic divergent lens. If bent around a sphere a symmetrical divergent lens." Since the part of the human cornea in front of the pupillary space has its two surfaces practically parallel, it can be readily seen that, if the refractive medium behind the cornea was the same as that in front, the cornea would so refract parallel rays of light as to make them divergent. The index of refraction of the aqueous being almost that of the cornea, the refraction, by means of the convex surface of the cornea, is maintained by the aqueous.

At the same time I concluded to have a concavo-convex lens ground, the two surfaces having the same radius of curvature and separated one-eighth of an inch in the center. You can readily see by moving the glass in front of the eye, watching objects beyond, that parallel rays of light before refraction are also parallel after refraction. (The rays are crowded more closely together.) That is, such a glass in effect is a plain glass. The mathematical formula for such a lens is: $(n-1)[(1\div R)-(1\div R')]=1\div f$; but R = 6″ and R′=6″ ∴ $.6\ (\tfrac{1}{6}-\tfrac{1}{6})=1\div f=0$ ∴ f= ∝ ∴ parallel rays will emerge parallel. Such a glass would not only serve to protect the eye from light, but would also be incapable of exciting any ciliary action. The third lens is one in which the convex surface has a six-inch radius of curvature, and the concave surface has also a six-inch radius; these two surfaces are separated one-fourth of an inch at center. By moving the lens in front of the eye objects beyond do not appear to move, therefore its effect is that of a plain glass. The mathematic formula would show that the focus of such a lens is infinity. I suppose that even a wider separation of these two surfaces would still give us the effect of a plain glass.

MODEL OF AN ASTIGMATIC CORNEA.

This model is intended to illustrate the refraction of an astigmatic cornea. The circular end represents that portion of the cornea immediately in front of the pupillary space. One of the two diameters of the circle represents the meridian of least curvature while the other represents the meridian of greatest

establish the fact that it can be so used as to be quite unreliable.

In this connection it is worth while to call attention to the difference in effect secured by different methods of making the instillation. The one commonly described, and I fear commonly practiced, is to draw down the lower lid and place the drop of solution within it. The one that I have followed in the application of mydriatics has been to retract the upper lid, have the patient look down and place the drop on the upper margin of the cornea. The involuntary rolling up of the eye that follows contact, usually causes the solution to be distributed over the cornea without any dilution. Some experiments as to the comparative effect of these two methods of instillation, which I shall report more in detail elsewhere, seems to show that the latter method is about twice as efficient as the former; that is, a solution of a certain strength applied to the upper margin of the cornea in this way, will produce the same effect as a solution of double the strength dropped in the lower conjunctival sac.

Another matter to be considered in this connection is the strength of solution necessary to produce complete paralysis of accommodation when efficiently employed. Undoubtedly it is very much less than we have been accustomed to prescribe for home use. Not that we have been in error in prescribing the stronger solutions, but that a large proportion of their strength was only needed to lessen the effects of imperfect application. As bearing upon this point, attention may be called to recent reports on the usefulness of weak solutions of scopolamin. Thus, Murrell (*Annals of Ophthalmology and Otology*, 1895, p. 478) finds repeated instillations of a one-tenth of one per cent. solution of this drug efficient in suspending the accommodation.

Therapeutic influence.—Although not bearing directly upon the diagnosis of ametropia, a quality which should powerfully influence our choice of a mydriatic for this purpose, is the power of allaying irritation and quieting the disturbance of the ocular circulation and the reflex or remote effects proceeding from eye-strain. Certainly in a very large proportion of cases of eye-strain we are justified in resorting to a mydriatic, and securing complete temporary rest of accommodation as a therapeutic measure. The temporary action of homatropin would seem to make it, for this purpose, markedly inferior to the stronger and slower mydriatics. I have in former years, on this account, used the latter in a considerable proportion of private cases, but this proportion has grown smaller, and such use of the slower mydriatics is now confined to the very marked cases of choroidal and retinal disease with considerable organic change. The interruption of morbid action within the eye, particularly that of spasm of accommodation, is as complete with homatropin as with the other mydriatics. If the instillation of the drug be made after the middle of the day, or when made earlier if one or two additional instillations be made in the latter part of the day to sustain its effect, complete abeyance of accommodation is secured until the following morning. The effect of this upon such symptoms as headache, nervous tension, spasmodic closure of the lids, etc., is very marked. Careful avoidance of any attempt to use the eyes on the day following the employment of homatropin will secure the benefit of the interruption of morbid action until the patient has fully recovered the power of accommodation.

Here is a marked advantage over the slower mydriatics, especially atropin. There is no question that with the slower mydriatics we secure as complete rest of the eye, and for a considerably longer period. But this is followed by a longer period of weakened accommodative power, during which it is often very difficult, or quite impossible, to prevent the patient from making some effort; and in the eye-strain resulting from such effort much of the advantage gained by previous absolute rest is lost. Unless, therefore, there are marked tissue changes whtch require time for their resolution, it seems to me that the therapeutic effect of homatropin is to be chosen rather than that of the slower mydriatics.

Brevity of action.—One of the great advantages of homatropin is the brevity of its action. How great an advantage does it possess in this direction? We read of ability to use the eyes after the use of duboisin and hyoscyamin within a week; or after the use of a weak solution of scopolamin, according to Murrell, "you can safely tell your patient that he will be able to read in seventy-two hours." But this does not mean that complete recovery has occurred within that time. It means that after such an interval the patient can, with undue effort and the risks of strain that have just been discussed, make some use of the eyes, while with homatropin, within the shortest period mentioned, the restoration of accommodation will usually have been complete.

It is well within the facts, to state that with homatropin the usual time required for recovery is less than one-half that required after hyoscyamin, duboisin or scopolamin, and less than one-third or one-fourth of the time required after the use of atropin. I have seen a few cases where recovery from homatropin was quite complete within twenty-four hours; and I do not doubt that more have occurred among a larger number of patients not seen at the expiration of that time, and giving the history of recovery after such an interval. In quite a large proportion the recovery is complete within forty-eight hours, and in more than 90 per cent. the accommodation has entirely returned within three days. This brevity of action removes the chief objection against the use of a mydriatic for the determination of ametropia, and to discuss the general question of the use of mydriatics as though atropin were the only drug of the class worth considering, is to-day very much out of date.

General symptoms.—Another objection to the use of mydriatics has been the possibility of symptoms of general poisoning. We have all seen these general symptoms, and occasionally have found them very annoying and quite alarming to the patient's friends. The patient is not usually much worried over the incoördination of thought and movement produced by one of the mydriatics. There can be no question that the danger of such symptoms is less with homatropin than with any other mydriatic, used so as to be equally effective. Indeed, my notes show that only about once in four hundred times was any constitutional effect noticed by the patient, although in nearly all cases there was a perceptible change in the pulse rate.

The most marked case of such constitutional effects from the use of homatropin that I have seen occurred recently, in a man aged 38, suffering from headache and neuralgic pain about the eyes from low hyperopic astigmatism. At the completion of the measurement of his refraction he staggered quite perceptibly in

walking, and said he felt as if he had taken several drinks of whisky. Reaching his place of business, his partner at once noticed the disturbance in his condition and took him into his private office, where he lay for three or four hours, at the end of which time he had recovered. At the height of the intoxication there was a tingling all over the body, extending to the ends of the fingers and toes. The patient was a nervous man; he expressed relief from the use of + 0.37 convex cylinder before each eye—said his eyes had not felt so rested in three years—but he gave no history of especial drug susceptibility. The amount of the drug applied in this case was about 1-5 grain. While the constitutional symptoms were decided, they were still slight in contrast with those more frequently observed after the use of other mydriatics, and doubtless could at any time have been completely removed by a small dose of morphin.

Other considerations.—The greater cost of homatropin, and the additional labor entailed, when the surgeon must make the applications of the drug, are important objections to its use in dispensary work, but are hardly worthy of consideration in private practice. Indeed, we have found it entirely practical to use the drug in a considerable number of cases in our dispensary work at the Philadelphia Polyclinic.

As to the danger of precipitating an attack of glaucoma, in an eye already upon the brink of such an outbreak, there can be no doubt that this is shared by homatropin, with the other mydriatics. But its comparative feebleness and brevity of action correspondingly diminish the danger of permanent harm from such an occurrence. In any case the dilatation of the pupil, which is the dangerous effect of the mydriatic, in threatened or actual glaucoma, can be promptly reduced by the use of eserin, which, in solution of one-sixth strength, neutralizes the effect of homatropin. And even if the increase of tension be unrecognized, the rapid diminution in the influence of the homatropin has, in reported cases, prevented permanent damage.

Homatropin has been credited with the frequent production of conjunctival irritation. This, I think, is an error. In my experience, in some 2,000 patients I have never seen it produce the conjunctival inflammation similar to that occasionally witnessed from the use of other mydriatics. But in almost every case in which it is used to secure complete paralysis of the accommodation it does cause a temporary hyperemia, involving to some extent the vessels of the conjunctiva, but more particularly those of the sclera and the pericorneal zone. This hyperemia commonly disappears by the time the full effect upon accommodation has been produced, and I have never seen it last more than a few hours. It is unattended by smarting or other evidence of inflammation, and seems to be of the same nature as the temporary local flushing I have pointed out as occurring after the hypodermic use of the drug. (See *Med. News*, July 24, 1886.)

Briefly, to summarize, the points that I bring before you for discussion are:

That homatropin, properly applied, is an efficient, reliable mydriatic, capable of producing complete paralysis of accommodation, and possessing the therapeutic influences for which a mydriatic is indicated in cases of eye-strain.

That, as compared with other drugs of the class, it is least likely to cause general poisoning or local harm by glaucoma or conjunctival irritation, and that it entails upon the patient the shortest period of inability for eye work.

SOME INTERESTING POINTS PERTAINING TO REFRACTION.

Read in the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

BY G. C. SAVAGE, M.D.

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It is a well-known fact that the curved, colored, protective glass has the effect of a concave lens. The surfaces are supposed to be parallel. A short while ago, while teaching one of my private classes, I decided to have the effect of such surfaces determined, both by mathematics and by the experiment of having such a glass ground. Let the convex surface of such a body have a six-inch radius of curvature and the concave surface have radius of five and seven-eighths inches; the surfaces being concentric are one-eighth of an inch apart and parallel. "The mathematical formula would be: $(n-1)[(1\div R)-(1\div R')]=1\div f=.6[(1\div 5\tfrac{7}{8})-\tfrac{1}{6}]=1\div f=1\div 0021286$, therefore f=470 inches, and the lens is divergent. Hence if a plain glass is bent around a cylinder it results in an astigmatic divergent lens. If bent around a sphere a symmetrical divergent lens." Since the part of the human cornea in front of the pupillary space has its two surfaces practically parallel, it can be readily seen that, if the refractive medium behind the cornea was the same as that in front, the cornea would so refract parallel rays of light as to make them divergent. The index of refraction of the aqueous being almost that of the cornea, the refraction, by means of the convex surface of the cornea, is maintained by the aqueous.

At the same time I concluded to have a concavo-convex lens ground, the two surfaces having the same radius of curvature and separated one-eighth of an inch in the center. You can readily see by moving the glass in front of the eye, watching objects beyond, that parallel rays of light before refraction are also parallel after refraction. (The rays are crowded more closely together.) That is, such a glass in effect is a plain glass. The mathematical formula for such a lens is: $(n-1)[(1\div R)-(1\div R')]=1\div f$; but $R = 6''$ and $R'=6''$ $\therefore .6\ (\tfrac{1}{6}-\tfrac{1}{6})=1\div f=0$ $\therefore f=\infty$ $\therefore$ parallel rays will emerge parallel. Such a glass would not only serve to protect the eye from light, but would also be incapable of exciting any ciliary action. The third lens is one in which the convex surface has a six-inch radius of curvature, and the concave surface has also a six-inch radius; these two surfaces are separated one-fourth of an inch at center. By moving the lens in front of the eye objects beyond do not appear to move, therefore its effect is that of a plain glass. The mathematic formula would show that the focus of such a lens is infinity. I suppose that even a wider separation of these two surfaces would still give us the effect of a plain glass.

MODEL OF AN ASTIGMATIC CORNEA.

This model is intended to illustrate the refraction of an astigmatic cornea. The circular end represents that portion of the cornea immediately in front of the pupillary space. One of the two diameters of the circle represents the meridian of least curvature while the other represents the meridian of greatest

curvature. In my judgment the best way to study an astigmatic cornea is to consider it as made up of a spherical and cylindrical surface, each having its own radii of curvature. There is no point of such a cornea but that extending from it are two radii, one of spherical and the other of cylindrical curvature. The radii of spherical curvature in this model will all come to a common point six inches behind the circle. The radii of cylindrical curvature will be in planes parallel with the plane of the meridian of greatest curvature, and the radii of each plane will converge to points in a line which is in the same plane with the meridian of least curvature. The two sets of radii for the meridian of least curvature are in the same plane; while the two sets for the meridian of the greatest curvature are also in the same plane. Each of these two meridians is an arc of a circle and therefore has a focus. This is not true of any other corneal meridian, for the reason that all other meridians are parts of an elliptical curve. If the astigmatism be vertical, and according to the rule, parallel rays of light in the horizontal plane will be so refracted by the meridian of least curvature as to be brought to a focus. Parallel rays of light in the vertical plane will be so refracted by the meridian of greatest curvature as to be brought to a focus in front of the other. The rays of light refracted by each of these meridians will be in the same plane after refraction as before. By revolving the model so as to bring the meridian of greatest curvature to 45 degrees the horizontal meridian of such a cornea has its radii of spherical curvature necessarily in the horizontal plane. If the eye be the right one, the radius of cylindrical curvature for the outer extremity of the horizontal meridian will rise above the horizontal plane, while the radius of cylindrical curvature for the inner extremity of the horizontal meridian will point below the horizontal plane. Parallel rays of light in the horizontal plane will not be in the same plane after refraction as before. The ray corresponding to the visual axis will pass through the cornea and will strike the yellow spot of Soemmering, not having deviated any from its original course. An axial ray striking the temporal extremity of the horizontal meridian of the cornea will be bent, in obedience to the law of refraction, toward both the radius of spherical and the radius of cylindrical curvature. Striking the radius of cylindrical curvature above, this ray, after refraction, rises above the horizontal plane. Passing across to the nasal side of the retina it would impinge above the horizontal meridian of the retina. Another axial ray, in the horizontal plane with the other two rays, striking the cornea at the left extremity of the horizontal meridian, beneath the radius of cylindrical curvature would be refracted beneath the horizontal plane. Passing across to the outer part of the retina it would strike it beneath the horizontal retinal meridian. These three rays of light come, one from the middle of a horizontal line and one from each extremity. Connect the points of impingement on the retina by these rays and the image line must necessarily be oblique, the nasal extremity of the image being above the horizontal meridian, the center of the image on the yellow spot of Soemmering and therefore in the horizontal meridian, the outer extremity of the line beneath the horizontal meridian. In obedience to the law of direction the object would be made to appear to incline to the same extent that the image itself inclines, therefore the object would appear to be leaning down and to the right. The reverse would be the case if the meridian of greatest curvature should be at 135 degrees; the model also shows the relationship that exists between the radii of cylindrical and radii of spherical curvature for all corneal meridians. In the two principal meridians they are always in the same plane. In all other meridians it is not possible for them to be in the same plane. It is not absolutely true that every point of an astigmatic cornea has these two radii of curvature, but it is true that there is a resulting radius for every such point, or, more correctly speaking, a resultant vertical. So far as the refraction is concerned, however, it is exactly the same as if every corneal point had the two radii.

DISCUSSION.

A. W. STIRLING, Atlanta—Dr. Savage has said that the anterior and posterior surfaces are parallel and has founded his argument on that. With due respect, I submit that that is not correct. The cornea increases in thickness from the center to the periphery, and when the pupil is dilated the rays of light pass through a thicker part of the cornea than when it is contracted. His would be an argument against mydriatics.

C. M. HOBBY, Iowa City—The surface of the cornea is the surface of an ellipsoid of three axes, how then can we speak of radii of curvature? How can there be two radii to one curve?

B. A. RANDALL, Philadelphia—The clearness of some parts of Dr. Savage's demonstration is due, unfortunately, to the neglect of some of the essential factors of the problem and the reduction of some others to too simple terms—as when he makes his so-called "astigmatic curvature" no curvature at all and its "radii" parallel. Were the Doctor to work out these problems in the smoke-filled chamber with proper curvatures to refract actual rays of light and a screen to receive the actual results, he would be relieved of many of his misapprehensions and could turn his abilities to more profitable fields.

Dr. SAVAGE, closing—In the model the two principal meridians of the astigmatic cornea are represented by straight lines, but they could have been as easily represented by curved lines. What is correctly shown in the model is the radii of curvature. The radii of spherical curvature all point to one common center. The radii of cylindrical curvature are in planes parallel with the plane of the meridian of greatest curvature, each plane coming together in a line which is in the same plane with the meridian of least curvature and of the same length. While I am sure that astigmatism can be better understood and studied in this way yet I am free to say that we have not these two sets of radii, but for every point there is a resultant radius or rather resultant vertical.

CONCERNING MEDICAL EDUCATION IN THE UNITED STATES; A BRIEF HISTORY.

BY FRANKLIN STAPLES, M.D.
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In ancient times a knowledge of the art of medicine was held by its possessors as secret, membership in the order of physicians being restricted and obtained only by initiation under the conditions and in the manner prescribed. In ancient Greece the right of the healing art was held by the order of the Asclepiadæ; and the Hippocratic oath, among its solemn requirements and inculcations of virtue and morality, has the following: I will impart a knowedge of this art to my own sons, to those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to no others." In times still more remote, among the Hindus the right of the

knowledge of medicine was hereditary, confined to the higher class, with physical and moral purity as requisites for initiation.

In the progress of events in modern times changes have occurred. Family succession and caste have ceased to be the requirements necessary for admission to the orders of the profession. This would seem to be an advance; the question as to how much advancement has been in the way of virtue and professional righteousness may be considered separately.

The matter of the advancement of the standard for the amount of scientific knowledge and practical ability requisite to the practice of medicine has been a troublesome one in this country for many years; but that real advancement has been made in the last decade and further improvement in the future is assured, is notable.

In 1877, the year following that of our great Centennial Industrial Exposition, the general condition of things in special educational lines in this country was ably set forth in an anniversary address by an eminent professor in one of our foremost universities.[1] After alluding to the evidences then shown of the country's great progress, the speaker observed: "Surely candor compels us to acknowledge that in regard to many things which are essential to a lasting and elevated civilization, we are still far behindhand. . . . One common thought must be entertained, which is, that among the influences that have led to the present state of affairs, one of the most powerful has been the want of thorough special training and preparation on the part of those to whom important duties are intrusted."

This was the view expressed concerning the condition of affairs in general at the time of the observation, and the need of improvement and reform in general service. It was further observed: "Few persons who are at all familiar with the subject will be willing to express even the smallest satisfaction with the present state of the medical profession in this country."

The status of medical science and education, and in part the causes of the same were mentioned as follows: "The ranks of the medical profession are overstocked; only a small percentage of those engaged in its practice are able to earn a living thereby, and worst of all, the profession has failed to elevate its standing and repute with the public, or to exert the powerful influence upon sanitary legislation, upon public and private hygiene, upon education and upon similar subjects, which is at once its duty and highest prerogative." This was said by eminent authority in the year 1887, and the truthfulness of the representation will hardly be denied by those who have given the subject any considerable attention.

The history of medical education in the United States from colonial times to the present is voluminous; only a few facts concerning conditions and concerning causes and results may be noticed. The beginning of medical colleges in this country was in Philadelphia in 1765. Dr. John Morgan and Dr. William Shippen, natives of Philadelphia, were the pioneer professors. Both had been students of Cullen of Edinburgh, and returning to Philadelphia began the work of teaching. The College of Philadelphia was formed with two professorships, which comprised all the branches; the one "Theory and Practice of Physic," held by Dr. Morgan; the other, "Anatomy and Surgery," filled by Dr. Shippen. This College of Philadelphia afterward became the Medical Department of the University of Pennsylvania. This institution is, therefore, the pioneer medical college of America.

The College of New York was founded in 1767. This became King's College, now the College of Physicians and Surgeons, Medical Department of Columbia.

A third chair in the Philadelphia school was formed in 1768, Dr. Adam Kuhn being made the professor of materia medica and botany. In the same year Dr. Thomas Bond of Maryland was elected professor of clinical medicine. Dr. Benjamin Rush in 1769 was elected professor of chemistry. These five professors constituted the faculty of medicine in the college of medicine until in 1777, when the city was occupied by the British army.

The Medical Department of Harvard College was organized and lectures began in 1782; that of Dartmouth College, N. H., in 1797. These four were the schools of America up to the close of the eighteenth century.

The following appears as a summary of the rules adopted for admission and for examinations:

1. Such students as have not taken a degree in arts must give evidence of a competent knowledge of Latin and of certain branches of natural philosophy.

2. Three years after matriculation an examination for the Bachelor's degree will be allowed to students who have taken one complete course of lectures.

3. One year after taking the primary degree the student will be admitted to the Doctorate, if he shall be 22 years of age, shall have attended two full courses of lectures, and have published and publicly defended a treatise upon some medical subject.

4. The mode of examinations shall follow that of the most celebrated universities of Europe.

An announcement of the College of Philadelphia was made in 1789, signed by Benjamin Franklin as President of the Board of Trustees, and by William Smith as Provost of the College, in which the requirements for the degree of M.D. were somewhat extended, specifying that the candidate must have been the pupil of some respectable practitioner for the space of three years; also specifying the departments in which he must have received instruction in the college, and providing for the written or printed thesis, in Latin or English at the student's option. At this time a requirement was also made for "attendance upon one course of clinical lectures, and on the practice of the Pennsylvania Hospital one year," this being the first of clinical instruction in the required curriculum.

The first medical degrees conferred were of Bachelor of Medicine. The first of these were granted in Philadelphia in 1768 and in New York in 1769. The first degree of Doctor of Medicine was conferred in New York in 1770 and in Philadelphia in 1771.

Such, in brief, were the means of medical education and the requirements for graduation in medicine from the early colleges and for admission to the profession in the American colonies before the war of the Revolution.

At the time of the beginning of the revolutionary war in 1775, the general situation is given as follows: There were in the colonies about three million people, who were distributed over a vast extent of terri-

[1] Prof. William Pepper, Provost University of Pennsylvania, in "Higher Medical Education," 1877.

tory. It has been estimated that there were for this number of people between 3,000 and 3,500 engaged in the practice of medicine. Of these, it has been estimated that about 400 had received the degree of M.D., and that most of these were from European institutions. The Philadelphia and New York colleges had conferred fifteen medical degrees prior to the year 1776, when active operations were suspended by the progress of the war.[2]

THE FIRST MEDICAL LEGISLATION.

Concerning the first laws enacted by the colonists to define the qualifications of physicians, Dr. Davis has the following in his "Contributions to the History of Medical Education": "The general assembly of New York in 1760 ordained that 'no person whatsoever should practice as physician or surgeon in the city of New York before he shall have been examined in physic and surgery, and approved of and admitted by one of His Majesty's counsel, the judges of the supreme court, the king's attorney general, and the mayor of the city of New York, for the time being, or by any three or more of them, taking to their assistance for such examination such proper person or persons as they in their discretion shall see fit.' Such candidates as were approved, received certificates conferring the right to practice physic or surgery or both throughout the whole province; and a penalty of £5 was prescribed for all violations of this law. A similar act was passed by the general assembly of New Jersey in 1772."

The history of medical education in our country for almost the whole of the first century of our national existence may be briefly outlined as follows: As the population of the country increased and extended over the vast territory of the United States, medical colleges were rapidly multiplied. In absence of governmental restriction, control and support, teaching schools were liable to be organized with power to confer degrees wherever a few physicians were found who were desirous of forming a partnership for the business. While a few of the colleges were so located as to be able to command good talent in the corps of instructors and good facilities for clinical and laboratory work, yet with many it was otherwise. Many were either located where good facilities were not available, or were under the management of a faculty whose members were incompetent as instructors. The support of the school and the compensation of the professors were dependent upon the number of pupils. With the kind of competition incident to this state of things it was found difficult to elevate the standard of qualification necessary for admission to the medical course, or to that of a degree. A few good men representing the higher grade schools made efforts from time to time to move forward, but not always with the desired success. A notable and illustrative instance is referred to in an address in 1892 by the eminent provost of the University of Pennsylvania, who, referring to the record of the anniversary sixteen years before, and the reflections then made on the degeneracy of medical education, gave the history in words as follows: "We thought of that bitter experience in 1846, when in accordance with the earnest recommendation of the AMERICAN MEDICAL ASSOCIATION, the University of Pennsylvania bravely extended her term of study, only to find that in spite of their specious assurances, not a single one of her rivals emulated her courage; so that after six discouraging years of steadily diminishing classes, she sorrowfully abandoned her advanced position. We thought, too, alas! of the long and painful controversy lasting almost five years over the proposition to again elevate our standard of medical education, and of how the end had been attained only at the cost of old friendships and of the allegiance of valued associates whose convictions remained as to the injury that would be worked to the university by the proposed advance." This was said by the learned professor with reference to experience in the past, in full view of a far better state of things at the then present, and of still better prospects for the future which is now at hand. General and professional public opinion has been slow in coming to its present understanding and position.

The more important causes of the slow progress in medical education, with suggestions for their removal, the diagnosis, a little of the pathology and indications for treatment, are contained in the following words of President Eliot of Harvard University, said in an address, I think, in 1892, and published in the *British Medical Journal*. The points made were as follows: 1, that it is a clear disadvantage in medical education that the degrees given by the faculty, a teaching faculty, should admit to membership in the profession and so to the legal right to practice medicine; 2, that the standard for membership, giving right to practice, should be made by law outside the teaching powers.

President Eliot further observes: "The salary of a full professor in the medical school is lower than in any other department of the university." This, he thinks, is not as it should be and speaks of it as our English inheritance. He says "From England we have inherited a lower standard of general education in the medical profession, a lower standard for admission to that profession and a lower standard of training for the entering upon the duty of medicine. On the continent they do things far better, and it is to be regretted that we have not substituted the continental for the English standard."

This was from the eminent president of Harvard in 1892. His conclusions and practical suggestions were summed up as follows: "We have obtained for the medical profession a higher standard in the community, but we have still to make proper the standard of preliminary requirement for admission to the medical schools, so that they may be equal to the schools of law and theology."

THE SLOW PROGRESS.

During most of the long period since the beginning in colonial days and until quite recent years, no enlargement of requirements in studies and time were made by the schools. This the most of us now in practice know from our own observation. Comparing the curricula of comparatively recent years with those of the early times, we see but little difference. Moreover, the competition instituted and maintained especially by the lower grade of schools, effectually rendered null some of the requirements that were effective in the beginning. This was seen, for instance, in the total disregard for any standard of qualification for admission to the college. An unavoidable evil existed in the fact, that a diploma from the school of the lower grade was just as good, legally, as that obtained at greater expense and better application at the higher institution.

[2] Contributions to the History of Medical Education and Medical Institutions in the U. S., 1776-1876, by N. S. Davis, M.D., LL.D.

This condition of things in free America causes the United States to be the nation with the largest proportion of physicians and of medical colleges to the number of inhabitants, of any in the world.[3]

It is not asserted here that continual progress has not been made in this as in other countries in the arts and sciences pertaining to medicine. The reverse is known to be true, and the discoveries and inventions of the period have been an important means in promoting the more recent advancement in the higher medical education.

The following language of a late professor in Harvard University is expressive of the truth:

"It is not an extravagant assertion to say that in all this turmoil, change and progress, medicine has kept abreast of the other natural sciences, of politics, and of theology, and has made equal conquests over authority, error and tradition. If this statement seems extravagant, it is to be recollected that the brilliant discoveries in natural sciences and the arts, the great political changes, and the vacillations of long established faiths to which we have referred, influence so obviously the fate of nations and the aspects of civilization, that they force themselves prominently upon our attention; while the progress of medicine is silent and unobserved. Yet the progress and changes of the latter are not less real than those of the former, and, perhaps, affect more profoundly than they the development of civilization and the welfare of the human race. During the past century, medicine has been enfranchised from superstition, quasi-charlatanism, bald empiricism and speculation, and has developed into a symmetric science, affiliated with the other natural sciences, studied by the same methods and the same appliances as they are, and, like them, has been planted upon the solid basis of facts and demonstration; pathologic anatomy, starting from the "de Sedibus" of Morgagni and the labors of Baillie, and illustrated by the later researches of Rokitansky and others, has become a fundamental branch of medical science; obstetrics, rescued from the hands of ignorant midwives, has been raised with its allied branch, gynecology, to its legitimate position as a science; preventive medicine and hygiene, cultivated to an extent previously unknown, have prolonged the average of human life; organic and physiologic chemistry have been substantially created, and achieved important and brilliant results; physiology has grappled with the abstrusest problems of the structure of life, and has revealed so much as to make timid people tremble at the audacity of its efforts."[4]

This was said in the year 1876. The great discoveries and advances in scientific research since that time, especially in bacteriology, asepsis, antiseptic means, the modern possibilities in operative surgery, and in the great field of preventive medicine, are not unknown to us.

STATE LEGISLATION AND ITS RESULTS.

The State of Illinois has the credit of first establishing by law a standard of requirements for practice in the State.

In June, 1880, the Illinois State Board of Health appointed a committee to formulate a scheme of educational requirements and characteristics by which to determine the good standing of medical colleges. This step was taken in order to enable the Board the better to discharge the duty devolved upon it by the act to regulate the practice of medicine in the State of Illinois; and by which act the Board is directed to "issue certificates (entitling to practice) to all who furnish satisfactory proof of having received diplomas or licenses from legally chartered medical institutions in good standing." A schedule was prepared by the committee, and subsequently formally adopted by the Board, as the standard entitling to recognition as the basis for legal qualification for practice in Illinois.

The first act regulating the practice of medicine in the State of Minnesota became operative in March, 1883. It was the form of legislation in force in Illinois. Five years later this law gave place to the present law, which requires an examination by the State Board of all persons commencing the practice of medicine in the State, and, as now amended, the minimum requirements demand that all graduates of later date than 1898, furnish evidence of having attended at least four courses of lectures in different years, of not less than six months each. Other States have enacted laws with similar requirements, and so large a number of the States of the Union now have medical practice acts, defining the requirements for admission to practice in the respective States, that such medical schools as would otherwise refuse to advance, must be compelled to come up to the higher standard or go out of the business. This movement shown in the passage of state laws to such an extent throughout the country, is ominous in that it speaks of advance in public opinion and knowledge in scientific matters. It is this that has made state medicine what it now is in this country.

With the educational prospects which we now have, with the present advanced pathology, with our able teachers thereof in the medical schools, laboratories and hospitals, in Philadelphia, Baltimore, New York, Boston and Chicago, with the world's present knowledge of the means and importance of cleanliness in medicine and surgery, and with our rapidly increasing knowledge of the means of prevention of disease in the land, as medical men we are able to rejoice in the present and hope well for the future.

The literature of medical history and medical education is important. The English writer, Dr. Edward Berdoe, speaks of the works of Sprengel, Hasser, Baas, Puschmann, and observes, that "many others of the same class sustain the claim that Germany has created the history of medicine, while the well-known but incomplete treatise of LeClerc shows what a great French writer could do to make this *terra incognita* interesting." Of English writers, we have the works of Drs. Berdoe and Withington, and other English contributions in special departments. In this country are published the works of Joh. Hermann Baas, translated into English by Dr. H. E. Handerson of Cleveland, Ohio; and the "History of Medicine from the Earliest Ages to the Nineteenth Century," by Robley Dunglison, is still extant.

"Contributions to the Annals of Medical Progress and Medical Education in the United States, before and during the War of Independence," by Joseph M. Toner, M.D., was published in 1874. "History of American Medical Literature," an address by Samuel D. Gross, M.D., appeared in 1875. "Contributions to the History of Medical Education and Medical Institutions in the United States of America, 1776–1876," by Nathan S. Davis, M.D., in 1877. "Medical Edu-

[3] Statistics in "Higher Medical Education," by William Pepper.
[4] A Century of American Medicine, 1776-1876, by Edward H. Clarke, M.D., A.A.S.—Harvard.

cation, Extracts from Lectures before the Johns Hopkins University, 1877–78," by John S. Billings, M.D., in 1878.

Beside, many anniversary addresses at college commencements and before learned societies have from time to time made additions to the literature of medical education in this country. What is done in the medical and surgical practice of to-day, is recorded in our hospital reports, in medical journal correspondence and in the practical works of American authors.

RACHITIC CHEST DEFORMITY IN TWINS, WITH EXHIBITION OF CASTS.

Presented in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY W. J. BELL, M.D.

EX-ASSISTANT RESIDENT PHYSICIAN OF NEW YORK INFANT ASYLUM.

ATLANTA, GA.

These cases are presented because they are unique. They were twins, the mother being a hunchback. The deformity is very nearly alike in the twins. They died of atelectasis and pneumonia at the age of fifteen months. In the case of Sarah Coy, we found a small strip of lung tissue on the left side, the other being of an atelectic character. The other lung was slightly encroached upon. This child just previous to death weighed eight and one-quarter pounds. Its breathing in best physical condition was eighty to ninety per minute, and the respiration during the last illness ran up as high as one hundred and twenty per minute, practically panting. A line drawn through the chest, directly from the central portion of the sternum, would have pierced the inner angle of the cartilages of the ribs as they were bent in, in each case. The other case is of a boy, weight seven and one-half pounds at the time of death. The two cases were almost exactly parallel. They were each subject to frequent bronchial attacks. The respiration in the boy was a little more rapid than in the other; the last illness gave a respiration that could hardly be counted.

Dr. BYERS—How about the limbs?

Answer: There were some evidences of rickets about joints. The head of the girl showed a slight rachitic square shape, and the sutures were only partially closed.

Question: Was the chest born that way?

Answer: It was slightly deformed. I did not see the children until about the third month and there was a slight sinking in at that time, which seemingly increased until their death.

Question: Is there any such thing as congenital rickets? Have you noticed such a thing?

Answer: I have heard reports of such cases, but never saw a case. These cases occurred in the New York Infant Asylum. I made molds for these casts over the bodies of the children, so they are exact reproductions of the chest.

SOCIETY PROCEEDINGS.

Southern Surgical and Gynecological Association.

Abstract of the Proceedings of the Ninth Annual Meeting, held in Nashville, Tenn., Nov. 10–12, 1896.

FIRST DAY—MORNING SESSION.

The association met in the auditorium of the Nicholson House, and was called to order by the President, Dr. E. S. LEWIS of New Orleans, La.

An Address of Welcome was delivered by the Hon. JOHN BELL KEEBLE of Nashville, which was responded to by President LEWIS.

There were fifteen new members elected, after which the reading of papers was proceeded with.

The first paper was read by Dr. W. D. HAGGARD, Jr., of Nashville, Tenn., entitled

VAGINAL VERSUS ABDOMINAL SECTION FOR PUS IN THE PELVIS.

He recounted the transitional periods in the treatment of pus in the pelvis: Vaginal puncture superseded by abdominal section and removal of pyosalpinx, total uterine castration per vaginam by the French and through the abdomen by the American school. They have reluctantly given way to modern vaginal section and evacuation and drainage of all pus pockets. It is a distinctly American innovation and will revolutionize the results in pus disease. The abdominal route affords visual inspection of the field. The attack on morbid masses can be made with safety to visceral integrity. If pus accumulations are multiple, rupture and peritoneal soiling are inevitable; that is the supreme disadvantage of abdominal incision. He had often seen the pelvis deluged with pus with impunity. He had also seen patients die within twelve hours from fulminant sepsis, from peritoneal contamination. The cases perishing from sepsis on the third day are classical. There is no way of distinguishing these cases clinically. All should be regarded as virulent. The writer referred to a mortality of 18.5 per cent. in a series of collected cases of laparotomy for pus, done in five metropolitan hospitals in the last year, and asked what must it be in the "unheard from precincts" and in the hands of the great unwashed? The abdominal method offers the best approach in tubercular inflammation of the ovaries and tubes and in small unilateral pus tubes.

The author referred to the advantages of exploring the pelvis for retro-uterine tumors, inflammatory, and adnexa by vaginal section. The geography of pus in the pelvis in most cases makes vaginal incision extraperitoneal, a minor procedure giving major results; no shock, no risk, no disturbance in convalescence. Patients will submit to it who will refuse more formidable procedures. We can change the methods, but we can not change the patient. In prolonged sepsis from huge abscesses posterior section and drainage are a life-saving procedure. The special indications are in: 1, early cases of acute suppurating salpingitis; 2, incipient post-puerperal peritonitis; 3, large pyosalpinx and true pelvic abscess. The first group includes early gonorrheal and abortion cases. The essayist had incised a tense tube and let out serous fluid and curetted a gonorrheal case of a month's standing with pain, temperature and tenderness for three days. The opposite tube was normal. In a week that tube became similarly affected and was similarly treated. He believed those serous effusions in the Fallopian tube were the preceding pathologic condition to pyosalpinx. If this be true and is the embryonal history of suppurating salpingitis in early gonorrheal and other inflammatory cases, the prophylactic value of vaginal section will be the greatest boon yet given to infected woman. In puerperal cases, incipient peritonitis and puddles of pus in Douglas' space imperatively demand incision. Should simple pus-letting in any of these cases not effect a cure, subsequent operation for removal of the relics of previous ravages can be done without the dangers incurred in the presence of pus. The field of vaginal section is to prevent suppuration in early cases, to anticipate it in puerperal cases and to save life in desperate cases. It is simple, surgical and safe. Its application to the pelvic inflammatory processes and to pus in the pelvis is one of the greatest surgical triumphs of the age.

Dr. JOSEPH TABER JOHNSON of Washington, D. C., said that while the vaginal method had a great many points in its favor and was being resorted to more and more in cases of large pus collections in the pelvis, yet those who had been familiar for a considerable time with the abdominal route could operate more conveniently and dextrously by this method and with greater safety to the patient than by the vaginal method. He could not agree with the speaker that the vaginal operation may be done without any risk or damage to the patient. Sometimes in operating through the vagina for the purpose of removing the uterus and its adnexa, or for large pus collections high up in the pelvis, where it is necessary to manipulate the parts a good deal and to do a thorough enucleation, the surgeon was likely to tear the intestines, the bladder, the ureter, or rupture a large vessel which is out of sight. In such cases the abdominal is much safer than the vaginal route. However, the vaginal method had much to commend it in cases of pus collections that are low down in the pelvis.

Dr. CHARLES P. NOBLE of Philadelphia believes we should practice a judicious eclecticism. He did not feel that either the abdominal or the vaginal method possessed all the advantages, but if restricted to one or the other he should choose the abdominal rather than the vaginal route. An objection form-

erly urged against the abdominal route was the large per cent. of hernias which followed this method. Only a week since he had tabulated the operations he had done for four years, which amounted to 397 abdominal cases, in which he had used the buried suture in closing the abdominal wound. Of this number seven of the wounds suppurated, while 390 healed by primary union. Of the seven which suppurated, one had a hernia. Of the 390 cases, one had a large umbilical hernia. Aside from these two cases he has not had any hernias in his operative work for the last four years, particularly where the buried suture was used. If the patient is in a condition to permit the surgeon to do ideal work, the question of hernia was such an insignificant one that it might be left out of consideration. The matter of hernia following abdominal operations was one of the stock arguments against the abdominal method. The next objection raised against the abdominal method was the great amount of shock as compared with the vaginal. His experience has been that unless the gynecologist operates on the desperately bad cases, shock played a small rôle in abdominal work. In short, he had had more shock following vaginal than abdominal operations.

Dr. HOWARD A. KELLY of Baltimore said that, whenever possible, pus in the pelvis should be treated by vaginal puncture or section posterior to the cervix, without sacrificing any of the uterine appendages. A large percentage of the cases thus treated would have no future discomforts. Illustrative cases were cited. One of the principal arguments advanced by advocates of the vaginal route in removing the uterus, tubes and ovaries was the excellent drainage that could be secured by this method. In Dr. Kelly's opinion it is unnecessary to take out the uterus to get drainage. By making an incision posterior to the cervix and breaking up adhesions free drainage could be established.

Dr. L. S. MCMURTRY of Louisville said a deep impression had been made upon the profession in the last few years by the vaginal method of operating for pus in the pelvis. The procedure, however, was by no means a new one, but had simply passed out of the minds of the profession of this country for a time, it having been superseded by the abdominal method, but had been recently revived. Battey, in his original operations upon the ovaries, attacked the pelvic organs through the vault of the vagina. The method of attacking accumulations of pus in the pelvis by vaginal puncture and drainage, practiced by Kelly as far back as 1889, was the universal practice of abdominal surgeons for a long time. The sacrifice of the uterus in the majority of cases of suppurative pelvic inflammation was unnecessary. While there were undoubtedly puerperal cases with suppurative pelvic inflammation, where it was necessary to remove the uterus, it was not so to such an extent as to make it a rule that this organ should be taken out. Surgery should be confined within the limits of removing only such diseased tissue or organs as are necessary for the complete cure and restoration of the patient.

Dr. J. WESLEY BOVEE of Washington, D. C., objected to anterior colpotomy in dealing with pus cases, unless the accumulation of pus was on top and in front of the bladder. He thought these cases could not be drained through the anterior vaginal route, and the pus could not be reached in many cases. He believes it is not necessary to remove the uterus at the same time pus tubes are taken out. He had seen cases where there was an abscess of the ovary, an abscess of the Fallopian tube and another alongside of each ovary, with three separate cavities on one side. By draining one a large quantity of pus could be evacuated, and perhaps in some cases this would be all that was required. He did not want to be understood, however, as being opposed to the vaginal route in very urgent cases.

Dr. R. B. MAURY, of Memphis, had, during the last two years, made it his duty to thoroughly study the subject of vaginal hysterectomy, as he had done quite a number of these operations without any mortality, without any accident, or unpleasant results. But he would not undertake to say that we ought to substitute it for laparotomy. Both abdominal and vaginal hysterectomy were operative measures that surgeons must avail themselves of according to the circumstances of the case. Dr. Maury then cited the histories of two cases that he had treated within the last 30 days, which beautifully illustrated the advantages of the two methods.

Dr. W. E. B. DAVIS, of Birmingham, Ala., said the practice of incising pelvic abscesses was so old that it hardly required discussion, but the method of attacking pus tubes by vaginal section was comparatively recent. Unquestionably vaginal incision for pus confined to the tubes and ovaries would save these important organs in a good proportion of cases. In all cases of large pus collections in the pelvis, nothing should be done more than to incise the abscess and drain, and then later on the surgeon should be prepared to do an abdominal section if necessary, but he would rarely find occasion to do this. Total ablation of the uterus and its adnexa was unnecessary in many instances in which it was practiced by some surgeons.

CHOLELITHIASIS.

A paper on this subject was contributed by Dr. A. M. CARTLEDGE, of Louisville, in which the author reported several interesting cases. He dwelt upon cholecystostomy and cholecystenterostomy, pointing out the indications for each operation. He considered cholecystostomy as the only operation applicable to the cases cited. In his opinion there were no cases that primarily demanded cholecystenterostomy. He was not prepared to say that cholecystenterostomy with the use of the Murphy button was good surgery, nor that the button was free from danger.

Dr. JAMES MCFADDEN GASTON, of Atlanta, agreed with the essayist that in ordinary cases of gallstones in the gall bladder with obstruction of the cystic duct, the simplest procedure was to lay open the abdominal wall, attach the gall bladder to the incision, and remove the gallstones. But in a large proportion of cases of complete obstruction he doubted whether there would be restoration of bile through the cystic duct into the gall bladder. Relative to the comparative value of cholecystostomy and cholecystenterostomy, the two operations were applicable to entirely different conditions. No one would operate and expect benefit from a cholecystostomy except to establish drainage for the bile in a case of permanent occlusion of the common duct, and this was the only condition in which the advocates of cholecystenterostomy had ever claimed anything for it.

Dr. JOHN D. S. DAVIS, of Birmingham, emphasized the point that patients frequently have gallstones without symptoms, more particularly jaundice. He does not believe that it is ever wise to resort to cholecystenterostomy as a primary procedure. The surgeon should first resort to drainage, and then if relaxation does not take place and the flow of bile is not affected, a cholecystenterostomy should be done.

Dr. GEORGE BEN JOHNSTON, of Richmond, Va., spoke of the diagnosis of gallstones. He is convinced that if examinations of suspected cases of gallstones were as careful and minute as they should be, surgeons would frequently find them. It has been his experience that enlargement of the gall bladder does not always occur where a gallstone exists, but that a condition which simulates enlargement of the gall bladder frequently does exist, this condition being due to the presence of numerous dense adhesions found in the neighborhood of the gall bladder, gluing it to every tissue with which it comes in contact. One thing which struck him as very singular in connection with the presence of gallstones was that the size of the stone or stones seems to make no difference in the production of symptoms. In regard to hemorrhage, it is generally admitted that in cases in which cholemia is profound, they are the ones in which we are to expect hemorrhage and by no known method can this hemorrhage be successfully controlled. The cholemic condition seems to invite a fatal hemorrhage. The experience of operators in this field of surgery is that when cholemia is profound, hemorrhage of a fatal character is to be expected. He considers cholecystostomy a proper procedure in all cases, except in those where the obstruction is in the common duct and can not be relieved.

Dr. W. E. B. DAVIS of Birmingham, said surgery of the gall bladder for the removal of gallstones had given quite brilliant results, but there were still questions in regard to operative procedures on the ducts that were not as yet definitely settled. He did not believe the essayist referred to cholecystostomy as being the choice of operation in a case where the obstruction of the duct could not be removed; that he must have had in mind the procedure advocated by Murphy of resorting to this operation in a case of stone in the gall bladder where there was no obstruction in the duct. Murphy resorts to cholecystenterostomy instead of cholecystostomy, and he thought the essayist did not intend to convey the idea that he would not do a cholecystenterostomy where the obstruction in the duct could not be removed. Cholemic cases were bad to operate upon. Perhaps in not more than 5 or 6 per cent. of the cases is the obstruction found in the common duct. Some years ago the author made experiments which conclusively showed that the surgeon could incise the duct and drain with gauze without peritonitis following this procedure. A paper on this subject was read by him before the AMERICAN MEDICAL ASSOCIATION in 1892, since which time he had done further experimental operative work in which sutures were not used after the stone was removed from the duct, and while several of the cases were already very nearly dead from cholemia and eventually died, yet in the cases in which this method was resorted to the abdominal cavity was walled of and peritonitis did not result.

Dr. GEORGE A. BAXTER of Chattanooga, directed attention to the frequency of gallstones unattended with the ordinary symptoms of pain or colic, and cited an illustrative case in which there were found, postmortem, three large stones in the gall bladder.

Dr. F. W. MCRAE of Atlanta, cited a case in which there were repeated attacks of colic with profound cholemia. An operation was undertaken with the idea that the obstruction was in the common duct, and that there were stones in the gall bladder. On opening the abdomen in the presence of several physicians he found the liver much enlarged and reaching almost to the umbilicus, but instead of finding the gall bladder enlarged, he found a fibrous cord not larger than his index finger. The common duct from disuse was reduced to a mere cord. A calculus was found in the hepatic duct, extending up into the transverse fissure of the liver. He did not know what to do for a case like this, and after consultation with his colleagues closed the abdomen. The patient died five days later from exhaustion. If anything could be done for such patients he would like to know it.

FIRST DAY—AFTERNOON SESSION.

Dr. JOHN T. WILSON of Sherman, Texas, read a paper entitled

MENTAL COMPLICATIONS FOLLOWING SURGICAL OPERATIONS.

The subject of mental disorders produced by or following surgical operations has not been discussed to any great extent, and until within the past few years only a passing notice was given it. It is a strange fact that while surgical operations will sometimes cause serious mental disturbance, on the other hand, these same operations will sometimes cure them; especially is this the case with some melancholiacs. Many females laboring under attacks of melancholia caused by some disease of the genital apparatus, have been cured when relieved of the physical defect by operation; others have been much improved, and yet some have received no benefit. The question may very properly be asked why a surgical operation should produce an attack of insanity. This can no more be answered in every case satisfactorily than can the question why some persons become insane from the many other causes to which it is attributed, for in most cases these mental complications are a surprise and no good reason can be given why they should follow. In others, however, a logical explanation might be had. If the patient is a high-strung, nervous individual, easily excited, unable to bear pain, the great and increasing dread of the anesthetic, the operation, or both, will so affect him that he will lose control of the will power and the explosion will come after the operation and reaction from the anesthetic. In many of these cases, probably a majority, there is an hereditary taint or a strong neurotic tendency.

The author quoted Mairet, who thinks, 1, that it is in those individuals who are predisposed by heredity or other grave causes—alcoholism, infectious diseases, etc., that surgical operations give rise to insanity; 2, in the constituent elements of an operation that might act on the brain were two most important ones, namely, the anesthetic and the degree of surgical traumatism with its after-effects, of which disturbed nutrition plays a very important part; 3, when predisposition also is considerable the anesthetic alone may produce insanity, or it may result even after minor operations. It is necessary to take into consideration the mental state of the patient prior to the operation, especially in those graver ones where questions of life or death are frequently involved.

Dr. E. S. LEWIS of New Orleans related the case of a woman, 40 years of age, very hysteric, upon whom he had operated for laceration of the perineum. She had manifested no evidences of insanity prior to operative interference, but during convalescence the hysteric manifestations increased and were associated with delusions. Her condition became so serious that on different occasions she threatened to commit suicide. She was transferred to an insane asylum, and after a thorough examination by the physician in charge an unfavorable prognosis was given. Investigation of the family history showed traces of insanity.

In another case, a woman 60 years of age, he removed a very large adherent ovarian tumor. The operation was attended with considerable shock. For a few days subsequently the patient did very well, had no fever during convalescence, but she later became perfectly insane. These were the only two cases he vividly remembered, although he had seen cases of temporary insanity after operations which had passed off in the course of a few months.

Dr. W. E. PARKER of New Orleans had seen two or three cases of insanity in men following surgical operations, but had never been able to trace any history of insanity in the family. The insanity occurred in alcoholic cases. Two of the men either took cocain or morphin. In the management of such cases the particular drug to which the patient was addicted should still be continued in very small doses, being cut off gradually, not suddenly, as great prostration often follows the interdiction of a habit that has continued for a number of years.

Dr. R. B. RHETT of Charleston, S. C., had met with three cases of post-operative mental aberration. The mental aberration occurred in two old women after removal of the breast for cancer. A third case occurred in a young woman who had had puerperal insanity prior to operation. In two instances the insanity lasted for three days, in the other three weeks.

Dr. A. M. CARTLEDGE of Louisville said the question of post-operative insanity led us to discriminate as to the probable etiology in many of the cases. He thought the author of the paper had in mind to deal with those cases of post-operative insanity supposed to be more or less functional in character, rather than those suffering from the mental impression produced by the operation in general. He was quite sure most of the cases, except those characterized by hereditary tendencies and traits, could be traced to some organic lesions. The history of the case should always be thoroughly investigated. He had only encountered what he considers pure post-operative insanity in two cases. One patient had been in an insane asylum four years previous to operation and had developed subsequently a pus tube. Just before operation the patient seemed perfectly rational, but on the third day thereafter a violent mania developed which terminated fatally. The other case of insanity occurred in an unmarried woman, 38 years old, from whom he had removed an ovarian cyst.

Dr. JOHN D. S. DAVIS considered the matter interesting from a medico-legal aspect. No surgeon was absolutely free from such mental complications occurring in his operative work. He had encountered four cases. In one case, a young man, there was no history of insanity, but an analysis of the urine showed a great many casts and a slight trace of albumin before operation. Operative interference was followed by acute mania which lasted seven days, then disappeared, and the patient recovered. He would like the essayist, in closing, to touch upon the responsibility of the surgeon in this class of cases.

Dr. JOSEPH TABER JOHNSON said that in talking with Drs. Kelly and Noble, he learned that the latter had met with eight cases of insanity following operations upon the perineum. He asked the essayist to state whether perineal operations were more frequently followed by insanity than others.

Dr. WILSON had seen a number of cases of various forms of insanity following surgical operations, but does not think the disease occurs more frequently after operations upon the perineum and genitalia than any other part of the body. In answer to Dr. Davis' question, he does not think the physician is any more responsible for the death of a patient from insanity following an operation than he is for death following any other operation. He had never heard of a suit of malpractice being brought against a practitioner for a case of mental derangement from a surgical operation.

Dr. GEORGE BEN JOHNSTON of Richmond, Va., followed with a paper on

SPLITTING THE CAPSULE FOR THE RELIEF OF NEPHRALGIA.

He drew the following conclusions: 1. Nephralgia is not always associated with a demonstrable lesion. 2. When other evidences of kidney disease are wanting the pain is due to a too tight capsule. 3. Nephralgia may and frequently does simulate symptoms of gross tissue changes or mechanical irritants. 4. Where severe and persistent pain in the kidney exists without other evidences of renal disease, exploratory operation is indicated. 5. When inspection, palpation and needle puncture fail to disclose a condition sufficient to account for the pain, the capsule should be freely opened.

URETERO-URETERAL ANASTOMOSIS.

Dr. J. WESLEY BOVEE of Washington, D. C., read a paper on this subject and reported an interesting case. The author dwelt at length upon the literature of the subject, quoting from the contributions to the surgery of the ureters by Van Hook, Fenger, Kelly and Cabot in this country, and the classical work of Glantenay, Liaudet, Tuffier and others in Europe. He drew the following conclusions: 1. Uretero-ureteral anastomosis is a perfectly feasible procedure. 2. Uretero-ureteral anastomosis, whenever possible, is far preferable to any other form of ureteral grafting, to nephrectomy and to ligation of the ureter. 3. It should be done preferably by lateral implantation or by oblique end-to-end anastomosis, though the transverse end-to-end, or the end-in-end methods may be safely employed. 4. That constrictions of the caliber of the ureter do not usually follow attempts at suturing in closure of com-

plete transverse section of the duct. 5. That nephrectomy for transverse injuries of the ureter *per se* is an unjustifiable operation. 6. That simple ligation of the ureter to produce extinction of the function of the kidney is too uncertain to justify its practice. 7. That drainage is not necessary if the wound be perfectly closed and the tissues throughout are aseptic.

Dr. HOWARD A. KELLY was very much interested in this subject and said every abdominal surgeon should be familiar with uretero-cystostomy or uretero-ureteral anastomosis, because in doing abdominal operations the surgeon was liable at any time to injure the ureter, when he would be confronted with the necessity of doing something to repair it. Dr. Kelly then pointed out the various ways in which the ureter might be cut during operations and described the method he pursues in repairing such injuries.

Dr. CHARLES P. NOBLE cited a case of neglected extra-uterine pregnancy complicated with an intra-ligamentous ovarian tumor. In operating, the intestines were apparently adherent over a mass of blood and a large fleshy adhesion ran up on it. To save time this was clamped, cut through and the pelvis cleaned out. It was necessary to do a hysterectomy in order to get anything to tie as the anatomic landmarks were obliterated on both sides of the pelvis. Furthermore, the broad ligaments did not come down in the usual way. When the operation was completed the patient was in collapse, and it was found that what was supposed to have been a fleshy adhesion was really the ureter and thickened peritoneum. The ureter was cut off almost up to the kidney itself. The lower part of the ureter was taken out with the mass of blood, there being only the upper three or four inches of the ureter left. Had any attempt been made to prolong the operation with the patient in collapse, death would have resulted. Although the ureter was short, it was dragged up into the upper end of the abdominal incision. It was impossible to do a uretero-ureteral anastomosis, likewise to switch the ureter into the bladder, because it did not reach anywhere near the brim of the pelvis, much less the bladder, and there was nothing else to do but to remove the kidney, which Dr. Noble did, and the patient recovered.

(To be continued.)

SELECTIONS.

Maragliano's Sero-Therapeutics of Tuberculosis.—The *Gazzetta degli Osp. e delle Clin.*, of October 18 and 20, contains Maragliano's latest report. The number of cases treated is more than 712, but he includes only those of which he has personal knowledge. And first he announces that the harmlessness of the serum treatment is now established beyond question. The occasional transient cutaneous and thermal disturbances are trifling, and the rare instances of vasomotor phenomena, resembling angina pectoris (nine cases in all), are also transient and without after-consequences, although he partially suspends the treatment when they occur. He states that the gravity of the disease is not determined by the length of time that has elapsed since its first appearance, but by the presence of fever and emaciation, as these are manifestations of toxemia, and this is a much more serious condition in tuberculosis than local lesions. If this is appreciated the benefits of sero-therapeutics will be more justly understood. He also adds that the persistence of the area of dullness is an evidence of cure and not of the reverse, as many suppose. This dullness is the result of sclerotic processes which are conservative and healing. If patients would apply for help in the early stages of the disease, when the organism is able to coöperate more effectually with the treatment, the cures would be much more numerous, but such cases are rare indeed.

The therapeutic value of the serum treatment is brilliantly manifested by the statistics which include all the bad as well as the favorable cases, as he emphasizes again and again. He admits that there were cases, and not a few, in which the results were negative, and the disease continued its course to a fatal termination in spite of the serum, but they only serve to enhance the benefits derived from it in the numerous other cases in which its curative effect on the principal morbid phenomena of the disease was unmistakable and permanent up to date.

At present the final permanence of the cure has still to be established, which time alone will tell. The effect of the treatment on the fever is slow and gradual. Where it persists in spite of the serum, it has been his experience that there was always some active microbic complication. He reports that the fever disappeared in 285 out of the 524 cases with fever. These include all stages of tuberculosis.

In 62.85 per cent. of the cases, the patients gained in weight; two gained 20 kilograms. In this connection he emphasizes again that the benefits do not depend on the amount of serum injected at a time, but on the regularity and long continuance of the treatment.

The broncho-pneumonic foci entirely disappeared in 25 per cent. of the total number of patients, the percentage diminishing with the increasing severity of the disease, from 85 per cent. in the circumscribed apyretic form downward. The bacilli disappeared completely from the sputa in 33 per cent.

He has also personally cured three cases of cutaneous tuberlosis, and one case of tuberculosis of the kidneys. He refers briefly to similar cures made by others, but does not include them in his report, among them a tuberculous anal fistula, reported cured by topic applications of the serum. The best results are obtained with small, regular, persistent doses of one c.c. every other day although some cases required more. (Moggi and Regnier used 10 c.c. at each injection.)

His usual method is by hypodermic injections, but he has obtained the same result with rectal injections of 10 to 20 c.c. He has also tried administering the serum by the mouth, but has not had sufficient experience with this method to formulate an opinion at present. One of his earliest patients apparently cured, has relapsed, but a second course of treatment has again caused the disappearance of all the symptoms. Out of the 114 earliest patients in the most advanced stages who showed marked improvement, 14 have relapsed and died since, and 6 others are in a serious condition. The rest are all doing well.

He classifies his 712 cases as follows:

1. Destructive broncho-pulmonitis with cavities, 168 cases. With fever, 129. Fever disappeared in 55; attenuated in 22; stationary in 52. Sputa examined and bacilli found in 59. Bacilli disappeared in 10; diminished in 27; stationary in 19; increased in 3. Weight measured in 129 cases; increased in 75; stationary in 38; diminished in 16. The positive results in the 168 patients in this category were: Apparently cured, 14; marked improvement, 75; stationary, 50; disease progressed, 29.

2. Destructive broncho-pulmonitis without evidences of cavities, but with microbic complications, 127 cases. With fever, 94. Fever disappeared in 54; attenuated in 15; stationary in 25. Bacilli in sputa in 52. Bacilli disappeared in 13; diminished in 27; stationary in 12. Weight measured in 113; increased 74; stationary 35; diminished in 4. Positive results in the 127 patients in this category were: Apparently cured, 12; marked improvement, 71; stationary, 35; disease progressed, 9.

3. Diffuse febrile broncho-pulmonitis with or without destruction of tissue, 220 cases. Fever disappeared in 107; diminished in 37; stationary in 60; increased in 16. Bacilli in sputa in 81. Bacilli disappeared in 13; diminished in 53; stationary in 12; increased in 3. Weight measured in 151 cases; increased in 90; stationary in 49; diminished in 12. Positive results in the 220 cases in this category were: Apparently cured, 10; marked improvement, 121; stationary, 67; disease progressed, 22.

4. Diffuse apyretic broncho-pulmonitis, with or without destruction of tissue. Bacilli in sputa in 17. Bacilli disappeared in 7; diminished in 9; stationary in 1. Weight measured in 58; increased in 43; stationary in 15. Positive results

in the 68 patients in this category: Apparently cured, 2; marked improvement, 54; stationary, 12.

5. Circumscribed febrile broncho-pulmonitis, 81 cases. Fever disappeared in 69; diminished in 7; stationary in 4; increased 1. Bacilli in sputa in 44 cases. Bacilli disappeared in 27; diminished in 16; stationary in 1. Positive results in the 81 patients in this category: Apparently cured, 33; marked improvement, 45; stationary, 3.

6. Apyretic circumscribed broncho-pulmonitis, 48 cases. Bacilli in sputa, 36. Bacilli disappeared in 33; diminished in 3. Weight measured in 45. Weight increased in 44; stationary in 1. Positive results in the 48 patients in this category: Apparently cured, 33; marked improvement, 13; stationary, 2.

The Influence of the Jews on Medicine.—Dr. Richard Landau in his *Geschichte der Jüdischen Aerzte* has traced the course of medicine among the Hebrews from the time of Moses, their great law giver, claiming the latter as a member of the medical profession, in the highest and best sense, on the ground that he was a sanitarian, and thence onward through Solomon, Elisha, Isaiah, Ezekiel and Jesus the son of Sirach, to the Essenes, whose Aramaic root-name shows that they at first professed medicine, though the sect soon became lost in mysticism. It was not until the first century of our present era, however, that the really great school of Jewish physicians began with Akiba and Ismaël, followed by Hanina about the year 200. Hanina was contemporary with Samuel, the great oculist and even greater accoucheur, whose collyrium was long a formula throughout the then known world. Samuel practiced first in Palestine and afterward in Mesopotamia. His bosom friend was Raw, a man possessed of the truest scientific spirit, for the Talmud tells us that he would spend his all to obtain bodies for dissection to perfect himself in anatomy. Abba Oumna and Rabbi Gamaiel III. in the fourth century ably maintained the prestige of the Jewish physicians, who in the fifth century became preëminent in Western Europe. When a knowledge of Greek was lost they made themselves master of Arabic and obtained a key to all that mass of literature which was locked away for many subsequent years. Soon after Spain had been conquered by the Caliphs in the eighth century great schools arose in Africa and in Europe, and in these the Jews were the leading teachers. The Jewish School at Cairo first migrated to Cordova, then to Sicily, and, afterward moving to the Italian mainland, it established itself at Salerno, proceeding thence to Arles, Narbonne, and still later to Montpellier and Paris. Avicenna, a Latinised form of Ebn-Sina, Ebn Zohar, who is better known to us as Avenzoar, Ibn Roschd or Averroës, and Moses ben Maimon, called Maimonides, were the most illustrious Jews in the tenth and eleventh centuries: their names are familiar to us from Chaucer's mention of them in his "Prologue to the Canterbury Tales." The priests looked with a jealous eye upon the encroachments of the Jews in medicine, and they obtained a formal excommunication against all who committed themselves to the care of a Jewish physician. During the twelfth and thirteenth centuries the Jewish doctors spread from Spain over the whole of Europe, penetrating even to the far East, for Saad Eddula was both physician and prime minister to the great Cham, Argun. The Spanish decree of 1492 compelled 160,000 to 800,000 Jews to leave Spain within four months of its promulgation. About a tenth of these made their way into Portugal and established schools there: the rest were dispersed, but many thousands died by the way. The persecution of the Spanish Jews was not an unmixed evil; it led to a wider distribution of the Hebrew race throughout Europe and to a dissemination of the knowledge and of the culture possessed by its best members. France and Italy received especial benefit, and the Popes were wise enough to attach a Jewish physician to their service for several generations after the edict of banishment had been promulgated in Spain.

On a Form of Low-temperature Pasteurization of Milk.—In the *Archives of Pediatrics* for August Dr. Rowland Freeman contributes a laborious research, with the original processes and photogravure illustrations, on the above subject. His conclusions are that Pasteurization at between 65 and 70 degrees C. is recommended for the following reasons:

1. It destroys almost all the ordinary air bacteria which occur commonly in milk.

2. It destroys the bacillus tuberculosis, the bacillus typhosus, the bacillus diphtheriæ and many other pathogenic bacteria.

3. It causes no change in the taste of the milk and avoids those chemic changes in milk which are produced by higher temperatures.

4. It is possible to Pasteurize accurately at this temperature without the use of a thermometer.

A question has been raised as to the advisability of the term Pasteurize. It seems to me that this name is necessary, as no other word indicates the same thing—that is a low-temperature sterilization followed by rapid cooling. The rapid cooling is a most important part of the process. If we use the expression low-temperature sterilization, the rapid cooling is apt to be overlooked. Milk should be used only during the twenty-four hours following Pasteurization. Although the Pasteurized milk will not sour in several days if kept cold, it should be used only during the interval I have indicated. Bottles of milk Pasteurized at about 68 degrees C. and left standing on my laboratory table during the spring usually showed no separation of casein in less than three days. Milk Pasteurized at 75 degrees C. I have found to keep for a week or ten days in a refrigerator. A very good demonstration of the keeping qualities of Pasteurized milk has been afforded by the Nathan Straus milk depots of New York. The milk sold at these depots is Pasteurized at about 75 degrees C. in large apparatuses constructed on the same principle as the one I have just shown. After cooling it is stored in iced water until dispensed. As many as seven thousand bottles are distributed by these depots during some days in summer. This milk supplies the very poor of New York and goes into many homes that are not supplied with ice. Two years ago, while preparing a paper I inquired of the superintendent whether they were at all troubled by any of the milk souring in the tenement houses. He replied that he had had one complaint, which he had investigated, and had found that the milk had been kept under the kitchen stove. When this charity was started in 1893 I advised Pasteurization at 75 degree C., and it was undertaken, although the gentleman having charge of it was assured by others that milk Pasteurized at this temperature would not keep under the conditions existing in tenement houses, and that a temperature of at least 80 or 90 degrees C. should be used. They have seen no necessity for using a higher temperature after three years' experience.

The editor of the *Archives*, Dr. Crandall, adds some pertinent remarks, as follows:

"According to our prevailing terminology, the term Pasteurization is applied to the process of heating milk to a temperature of 167 degrees F., followed by rapid cooling. This process modifies, somewhat, the taste of milk and produces slight chemic changes. It is certainly desirable, if possible, to destroy the bacteria in milk without producing any other change. Milk is a complex and delicate fluid and is very easily disturbed. It is difficult in the case of large numbers of children to adapt cow's milk to the digestive capacity of the stomach, and it has been felt by practitioners that every added difficulty should be avoided so far as is compatible with safety. The apparently simple question of the taste of milk becomes in some cases an important one. Experience shows that change in taste does not occur in milk heated to about 70 degrees C., and very few if any chemic changes. The chief objection to Pasteurization below this temperature has been the uncertainty as to the thermal death point of the tubercle bacillus. The more recent but very convincing investigations upon this point show that the death point for these germs is sufficiently low to warrant Pasteurization at a lower temperature than 167

degrees F. Dr. Freeman certainly seems to have proved that Pasteurization at about 155 degrees F. is a safe and effective process by which many of the objections incident to the higher temperature are obviated. His apparatus offers the most practical means of accomplishing this end which has yet been devised."

PRACTICAL NOTES.

Unguents for Insect Bites.—Brocq suggests the following preparations for the bites of fleas, gnats and bugs:

1. Camphorated chamomile oil 100 grams; balsam of storax pur. 20; essence of peppermint 5 gr.

2. Olive oil 20 gr.; ointment of storax 25 gr.: balsam of Peru 5 gr.

3. Naphthol 5 to 10 grams; ether q. s. to dis.; menthol 0.25 c. to 1 gram.; vaselin 100 grams.—*Journal de Méd. de Paris*, October 18.

Serum-therapy of Typhoid Fever.—Funck, superintendent of the Serum Institute of Brussels, announces as the results of extensive experiments, that the serum of animals immunized by means of typhoid cultures possesses all the properties ascribed by Pfeiffer to anti-cholera serum, namely, that small doses protect against typhoid infection, but do not protect against infection from the coli bacillus. He therefore believes in the therapeutic efficacy of the typhoid serum, but does not venture yet to recommend it for use outside of the laboratory.—*Progrès Méd.*, October 17.

Intravenous Injections of Saline Solution in Puerperal Eclampsia.—The patient had already had twenty attacks of convulsions, with profound coma between, when the first intravenous injection was made. Five further attacks followed, and a second injection was made the next day, followed by complete cure with no more eclampsia. Three thousand grams were injected in all, at 0.75 per cent.—Coen in the *Ann. di Ostet. e Gin.*; *Gaz. Méd. de Liege*, October 15.

Cerium Oxalate in the Crises of Tabes.—Professor Bechterew has been using cerium oxalate in cases of gastric crises of locomotor ataxy and reports marked success from this treatment. The seizures of vomiting were greatly reduced in number, while the actual act of vomiting became easier, and at the same time pain, thirst and nausea were, to a great extent, diminished. The psychic conditions also improved, restlessness subsided and sleep returned. Micturition is said to have become slightly more difficult, but not enough to require a catheter. The most important improvement, however, was that food could be retained owing to the diminished number of paroxysms of vomiting.—London *Lancet*, August 22.

Appendicitis a "Dysentery" of the Appendix.—Golubow does not consider appendicitis a specific bacterial disease, but due to the fact that the usual microbes in the alimentary canal acquire extraordinary virulence from some cause unknown, and produce dysentery of the appendix, which may be epidemic. He is led to these conclusions from observation of several cases of benign appendicitis appearing as an epidemic in his practice, among others, three scholars in a certain school who sat together on the same bench, were all taken with appendicitis within three days. He describes the symptoms of this benign form as sudden sensitiveness in the center of the abdomen, localized by palpation above the right Poupart's ligament, elevated temperature, loss of appetite and constipation. He thinks this form is often overlooked. It passes away in two to three days.—*St. Pet. Med. Woch.*, November 10.

New Method of Making a Stomach Fistula.—Heusner has treated successfully seven cases of impassible cardiac carcinoma, opening a fistula into the stomach by the following process: He first makes a transverse incision just below the left hypochondrium, about 10 centimeters long, parallel with the long axis of the stomach. He then exposes the cartilage of the seventh rib at its point of attachment to the costal arch. This point is not above the pleural cavity, but over the first fibers of the diaphragm. With the left hand a gauze tampon is introduced under the cartilage, and a hole is cut through it with a trocar the size of a thumb, passing obliquely from above downward and inward through the cartilage and the peritoneum. With the fingers of the left hand and a pair of forceps, a piece of the anterior wall of the stomach is then drawn out through this hole and sutured, first to the cartilage and then to the skin. The abdominal wound is then closed and painted with iodoform collodion, after which the protruding bunch of the stomach wall is opened and food introduced. The operation is simple and without danger and the fistula thus made never shows an inclination to grow smaller in diameter, an important advantage.—*Cbl. f. Chir.*, October 17.

Salol in Progressive Pernicious Anemia.—The cure of a case of severe anemia is reported from Budapesth which had resisted for months the administration of iron, quinin, bone marrow, arsenic and inhalations of oxygen. The cause was unknown. No parasites were found in the feces, either adult or embryo. Suspecting at last some auto-infection salol was administered in 1-gram doses five times a day, and the condition of the patient began to improve at once. Each time the medicine was suspended the former symptoms returned, but the dose was gradually diminished to 3 grams a day, and in three months it was possible to discontinue it entirely, as the patient had recovered his former health, with complete disappearance of all the anemic symptoms, including the paleness, heart murmur, tumefaction of the liver and spleen and the characteristic alterations in the blood.—*Semaine Méd.*, October 7.

Gutta-percha Gauze for Postpartum Hemorrhages.—Cases of uterine or other hemorrhage that persist in spite of the tightest packing with the usual gauze, are relieved by an additional tampon of gauze impregnated with gutta-percha. The iodoform gauze acts as a drain and the blood keeps oozing through, but it is arrested by the gutta-percha gauze, which is also soft and pliable, but is not absorbent. Schæffer recommends to tampon first with the usual gauze, leaving a small end projecting as a drain, and then pack with the gutta-percha gauze, closing the drain entirely if necessary.—*Semaine Méd.*, October 21.

Macroquila.—The *Revista Médica de Chile* describes and illustrates in its April number a case of this rare congenital affection of the lips. The young man's lip, hypertrophied and ulcerated, formed a conical projection, measuring 12 centimeters from the corner of the mouth to the point, 8.5 at its widest and 4.75 at its thickest part. The lip had always protruded, but not enough to constitute a deformity, until he was 13, when a violent blow on the chin caused him to bite the lip lengthwise, producing a deep wound and severe hemorrhage. It slowly increased in size after this and a tumor formed, until the lip resembled the end of a "Vienna loaf" of bread. San Cristobal removed the tumor and part of the lip, making a new one. A fistula persisted a couple of months; when it healed nothing but the scar remained of the previous deformity.

Estlander's Operation on a Child.—Preetorius describes in the *Antwerp Annals* his surprising success with this operation in a case of purulent pleurisy on the left side of eighteen month's standing, the patient a girl of 6. He first resected 5 cm. of the fifth rib on the nipple line and 5 cm. of the seventh on the scapular line, leaving a double drain in the thorax. Two weeks afterward he resected 14 cm. of the seventh rib, 13 cm. of the sixth, 12 cm. of the fifth, 10 cm. of the fourth and 4 cm. of the third. The cavity still persisting and containing about 70 grams of fluid, he performed a third operation a month later, removing the ten last centimeters of the sixth rib. The fistula healed in the course of a month and complete recovery fol-

lowed. The child would inevitably have succumbed without this heroic operation, as liver and spleen were very much enlarged at first, but gradually subsided.—*Presse Méd.*, October 3.

Neuritis Cured by Local Compression.—Peripheral neuritis of traumatic origin is apt to be exceedingly rebellious to either medical or surgical treatment, but Delorme has invented a new cure which has proved a perfect success in each of the ten cases in which he has tried it, and its efficacy has also been confirmed by others. His first case was a soldier wounded in 1870 by a bullet in the neck. A keloid scar had formed where it had emerged close to the posterior border of the sterno mastoid, three by four centimeters in size, which had been the seat of continuous pain ever since, that is, for twenty-three years. No relief had been derived from the use of the thermo-cautery, bistoury, galvano-cautery, Vienna caustic, etc. Delorme conceived the idea of destroying the nerve tissue in the cicatrix by forcible compression. Seizing it between the thumb and the forefinger of each hand, he squeezed it with all his might, for a few seconds. Four days later he repeated the operation, and the pains vanished, and have never returned during the three years since. The other cases were of more recent occurrence, but they had resisted all other treatment, and the same forcible compression produced complete cure. Six were neuritis consecutive to accidents to the feet, finger or wrist, the others to the face, neck, leg or shoulder. In case of pain in the finger after a partial amputation, opening of a phlegmon, or a crushing bruise, he first carefully locates the exact limits of the hyperesthetic zone, and then, the patient seated or reclining, held by the assistants, the arm and wrist immovably fastened, he seizes the finger between his two thumbs and forefingers, and exerting all his strength, compresses successively every spot on the entire surface of the hyperesthetic zone, commencing with the most painful points, and exerting there the maximum pressure. A few seconds exhausts both operator and patient, as the process is very painful. After a few minutes rest it is repeated by the operator or one of the assistants, sometimes two or three taking it in turn. One operation is usually sufficient, but sometimes as many as three are required, at intervals of several days. The trophic troubles, cyanosis, edema, stiffness in the joints, etc., disappear with the pain. Delorme has never used an anesthetic for fear of interfering bulbar reflex, but suggests that chloroform or local anesthetics might be used.—*Bulletin Médical*, October 14.

Treatment of Malaria in Children.—Feuchtwanger describes in the *Therap. Mon.* for August the results of his experience in Palestine, where malaria is endemic. He tried various substitutes that have been suggested recently, but found that he always had to return to quinin. He uses principally the bisulphate for children, as it seems more efficient with them, although it does not contain so much quinin as the sulphate. He gives as many decigrams as the child has years, or as many milligrams as it has months. Under 2 months he has it rubbed into the arm-pits and groins in a salve made of 2 grams of quinin in 40 grams of lard. The effect of these frictions has always been the same as if the quinin had been administered by the mouth, notwithstanding that the absorption of quinin through the skin is denied by all the authorities. At 3 to 4 months of age he administers the quinin in suppositories three times a day, each containing twice the dose for that age. Sometimes they produce rectal tenesmus, when he substitutes enemas for the suppositories. The quinin produces exactly the same effect in suppositories or enemas as if taken into the stomach. He substitutes the valerianite of quinin for the bisulphate in cases of malarial neuralgia. He has also obtained brilliant success in cases of pernicious malaria with coma, paresis of the pupils, vomiting, hemoglobinuria, etc., in children of 10 to 12, by subcutaneous injections of hydrochlorate of quinin. After the third injection of 50 centigrams the hemoglobinuria ceased as if by magic; ice taken internally arrested the vomiting and baths at 27 degrees C. controlled the hyperthermia. In three days quinin suppositories were given and the children were saved. The consecutive malarial cachexia in one case was cured by tonics, iron, arsenic, calisaya bark. This cachexia is often difficult to conquer. To prevent the return of the febrile attacks, he keeps up the use of the quinin for several weeks, with or without tincture of litmus and small quantities of diluted hydrochloric acid. If this treatment fails, he returns to arsenic and administers a mixture containing 2 grams of solution of potassium arseniate and 8 grams of the tincture of malate of iron. Of this he gives five drops three times a day to a child of 3 years, increasing the dose a drop a day until it is 15 drops, and then diminishing to 5 again. If there are gastric troubles this arsenic medication is contraindicated. In this case there is no resource but change of locality. He has been successful with older children, 8 to 15, with pills composed of hydrochlorate of quinin, arsenious acid and reduced iron.—*Presse Méd.*, October 3.

Hypodermoclysis in the Treatment of Thermic Fever.—Dr. F. A. Packard of Philadelphia communicates to the *Medical News*, August 22, a case of the above nature as treated in the wards of the Pennsylvania Hospital. The patient was a contractor, aged 48 years, received in the hospital at 8:30 P.M. on August 12. He was rubbed with ice on the way to the hospital in the ambulance, but on admission he was found to have a temperature of 109.6 degrees, pulse 154, respirations 33. He was unconscious, but not convulsed, with moderately contracted pupils and markedly stertorous respiration. He was at once put in a tub of iced water and given nitroglycerin (1-100 gr.) hypodermically. After being in the tub for five minutes he was removed, placed on a bed and vigorously "ironed" with ice. At 9:07 his temperature was 103.4, pulse 146, respiration 32 and irregular. At this time he began to have spasmodic contraction of the extremities. At 9:35 he became very cyanotic, the respirations became slow and labored, requiring, finally, the use of artificial respiration and the battery. At 10:05 his temperature had remained below 103 degrees for some time, but there was marked twitching of the right side of the face added to the previous spasmodic contractions. The pulse at the wrist was imperceptible at this time. At 10:18 he was "fearfully cyanotic," and the jaws became rigidly fixed. He was bled from the median basilic vein to the extent of sixteen ounces, immediately after which the respirations became more deep and quiet and the spasmodic twitching lessened. At 10:25 half a pint of sterilized normal salt solution was slowly introduced beneath the skin of the pectoral region on both sides. The pulse at once improved and at 10:40 he became conscious and gave his name, while at about the same time the twitchings ceased. Nothing further of interest has occurred up to the present time, the patient being thoroughly rational, perfectly comfortable and showing no symptoms, save for slight elevation of temperature that is easily accounted for by a quite severe glossitis that has resulted from a lacerated wound of his tongue, produced by his teeth during his period of pseudo-convulsions. Inasmuch as in a very large number of cases of thermic fever the symptoms rapidly disappear after reduction of temperature, there must be some factor other than the high bodily temperature alone, which continues to be present in those cases wherein improvement fails to follow the fall in the bodily temperature. If, in such obstinate cases, bleeding is performed, it is found that the blood flows very sluggishly from the vein, that it is thick and tarry, and that it is evidently lacking in its fluid portion. Such being the case, it seems not unreasonable to surmise that the persistence of coma, stertor, muscular rigidity, etc., may be due to the lack of water in the blood. Why some cases should suffer from this condition, while others escape, it is difficult to say, but careful inquiry might elicit some facts in regard to the amount of perspiration lost, the amount of fluid ingested just prior to the attack, and other features of the various cases that might throw some light upon this difference in course.

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SATURDAY, NOVEMBER 21, 1896.

POLIENCEPHALOMYELITIS.

We have a good deal yet to learn concerning the action of various poisons upon the nervous system and particularly as to the effects induced by the group of infectious diseases. A growing experience has taught that nerve-fibers and nerve-cells may suffer in numerous ways through the deleterious influence of the agencies just named. We may thus have inflammation, hyperplasia, degeneration and sclerosis in white or gray matter in varying distribution, with corresponding diversity of symptoms. There are, however, many conditions in which, despite the presence of the most profound and pronounced symptoms, no lesion is demonstrable. The alterations that exist under these circumstances must therefore be looked upon as of the intangible nature which for the present we must be satisfied to designate nutritional, chemic or toxic. When recovery takes place these changes may disappear and leave no trace of their previous existence. On the other hand they may lead to structural alterations, with persistence of symptoms. A group of disorders of this kind, especially characterized by muscular weakness and undue readiness of fatigue and exhaustion has received interesting consideration at the hands of KALISCHER (*Zeitschrift für klinische Medicin*, B. XXXI, H. 1, 2, p. 93), who enters at length into a discussion of their clinical and pathologic aspects. He reports in detail a carefully studied case of chronic poliencephalomyelitis in a man, 50 years old, developing in the sequence of an attack of influenza, and refers to a number of other cases, some of which have been reported under various other designations, all agreeing, however, in their essential features, and the symptoms present being referable to disturbance in the functions of the motor bulbo-spinal nuclei for the entire muscular system, situated in the central gray matter from the floor of the fourth ventricle to the lumbar portion of the spinal cord.

The disease is most common in persons between 20 and 60 years of age. It is usually subacute in onset, rarely acute or insidious, at first progressing subacutely and later pursuing a chronic, stationary or varying course. Manifestations of constitutional disturbance, such as fever, headache, vertigo, vomiting, are generally wanting throughout. In most cases the ocular muscles are first involved and in irregular order one after the other. Ptosis may appear first on one side and then on the other and may be slight or pronounced. Then the other muscles become involved, usually in greater degree upon one side than upon the other. The fourth and sixth nerves are not spared. Diplopia is not always present; and almost never well defined strabismus. The internal ocular muscles usually escape. The disturbance of the ocular muscles generally recedes, to give place to bulbar or spinal symptoms, or they may remain in association with the latter. Sometimes the disease sets in with bulbar symptoms and rarely with weakness of the muscles of the neck, trunk and extremities, advancing upward. Usually extension occurs in stages, weakness in the upper or lower extremities being suddenly added to the paralysis of the ocular muscles; or paralysis of the muscles of deglutition or of the ocular muscles being added to weakness of the neck. Not rarely bulbar symptoms predominate, including weakness, fatigue, permanent or progressive paralysis of the muscles of the face, tongue, those of mastication, of deglutition, those of the esophagus, in unequal degree upon both sides. In the extremities the parts nearest the trunk are involved earlier than those at a distance; the extensors at times more than the flexors.

The tendon-reflexes, and especially the knee-jerks, are enfeebled or lost. The sensory and the sensorial functions usually remain uninvolved, as well as psychic activity and the sphincters. Fibrillary twitching is not observed. Muscular atrophy does not take place as a rule; if at all, late and in slight degree. Paralysis is the primary and the most conspicuous manifestation. The electric reactions remain unchanged or are enfeebled and in grave cases perhaps lost. Degenerative reactions are rare. The so-called myasthenic reaction is observed in some cases—that is, the muscles respond normally to faradic currents of ordinary intensity, but to tetanizing currents the response grows gradually more and more feeble until it ceases altogether. It appears most marked when the fatigue-

phenomena on voluntary innervation are quick and pronounced.

The intensity of the palsy is variable. Fatigue and recovery take place readily and quickly. The degree of fatigue does not always correspond to the degree of permanent weakness and paresis. In severe cases the patients become completely helpless. In walking, the knees may give way; or the gait may be staggering. Active exercise may be attended with an urgent sense of the need of air, from fatigue of the respiratory muscles. Not rarely sudden death occurs from paralysis of the vagus or of the diaphragm. Other dangers may arise from sudden weakness of the muscles of the pharynx and esophagus, so that liquid diet may be necessary and regurgitation through the nares may take place. If the hands are involved there may be difficulty in carrying food to the mouth, in writing and in other manual exercises. When the eyes are used, the ptosis is aggravated and the muscles of the neck become weaker from efforts to hold the head erect. Speech becomes nasal and after a time indistinct, low and whispering. The ability to sing and to whistle is lost, and smoking becomes difficult.

A characteristic feature of the disease is the rapid recovery of strength after rest and the improvement in the morning after sleep. Remissions in the intensity of the symptoms occur from time to time and may continue for varying periods—from days even to years—and simulate perfect recovery. The progress of the disease may further be very slow and characterized by exacerbations; or the morbid process may finally cease to progress, leaving a condition of permanent weakness. Sometimes death occurs unexpectedly.

In many cases no lesion has been found after death. In one case degenerative changes were present in the medullary sheaths of the nerve-roots of the medulla oblongata. In another there was vascular dilatation, with hemorrhage and degenerative-atrophic conditions of the ganglion-cells of the central gray matter. These various lesions, however, are inconstant and inadequate to explain all of the symptoms; so that it must be assumed that there occur chemic, nutritive or toxic changes capable of disappearing and of repair without leaving evidences of their previous presence.

In an etiologic connection most of the cases reported have had some direct or indirect relation with one or another of the infectious diseases; others with over-exertion or with excessive use of alcohol or tobacco. No relation to syphilis could be established.

Subacute or chronic poliencephalomyelitis is to be distinguished from acute encephalitis by the absence of acute onset, of constitutional manifestations (fever, delirium, etc.) and other cerebral symptoms (aphasia, etc.); by its peculiar and more systematic invasion (bulbo-spinal symptoms) and its chronic, partly remitting, partly progressive course. Poliencephalomyelitis differs from acute poliencephalitis in the absence of symptoms of general disturbance (vertigo, vomiting, optic neuritis, delirium, etc.), in the less rapid course and in the presence of bulbar and spinal symptoms. From progressive bulbar paralysis it differs in the less characteristic localization and a less universal involvement of the bulbar nuclei, in its irregular, fluctuating, remitting course, in the absence of fibrillary twitching and of degenerative reactions, in the relative absence of muscular atrophy, in the presence of muscular fatigue, the possibility of improvement, in the absence of distinctive lesions, in the early and frequent involvement of the ocular muscles and also those of the neck and extremities, and in the irregular, abrupt involvement of the entire system of bulbo-spinal nuclei. From amyotrophic lateral sclerosis it is to be differentiated by the absence of spastic manifestations and from progressive muscular atrophy by the varying course, characteristic localization, atypic distribution, unsteady progression, early participation or precedence of paralyses of bulbar nerves and of the ocular muscles. It is to be distinguished from pseudo-bulbar palsy by the mode of onset and by the absence of psychic disturbance and of hemiplegia.

In the treatment of poliencephalomyelitis drugs have proved of no service. The best results will be secured through rest and the avoidance so far as possible of muscular activity; every unnecessary fatigue should be avoided. Solid food should be interdicted and only small quantities of soft food and of liquid given at frequent intervals. In aggravated cases the administration of nutritive enemata may answer a useful purpose. Especial attention should be directed to prophylaxis, in so far as the danger of infection is always to be avoided, and should such effort prove futile the acquired disease, with its attendant intoxication, should be gotten rid of with all possible expedition. During convalescence from infectious diseases undue physical effort should be avoided and roborant treatment should be instituted.

THE PASSING OF THE HOLY-STONE.

"Six days shalt thou work and do all that thou art able;
On the seventh, holy-stone the deck and scrape the iron cable."
—*Old Merchantman Rhyme.*

Another time-honored "custom of the service"—but honored in no other respect than its antiquity—has fallen before a few pen-strokes over the signature of the Assistant Secretary of the Navy—the practice of holy-stoning the decks of men-of-war is to be henceforth abandoned. As commodores and midshipmen were once head and tail of the personnel of the naval service, and sails and spars and tacks and sheets, things without which no man-of-war could be, so was the holy-stone, the sacred possession of the Kaaba of the quarter-deck, which every old shell-back had first detested in his youth and then accepted in his old

age, as the thorn in the flesh which it was his lot to wear without repining. This was yesterday; and to-day *Midshipman* Easy might roam the decks with his little hanger and find no messmate; "commodore" is scarcely more than a traditional title; sails and spars have disappeared, reefing and furling are lost arts; and now the holy-stone is for all future time to be anathema. *Maran atha!*

For years before the oldest living medical officer of the Navy received the blue ribboned parchment which constituted him during the pleasure of the President of the United States, an officer of the Navy, to whose orders "all officers, seamen and marines under his command" were "strictly charged and required to be obedient" (pregnant words, though the pregnancy be only phantom)—this venerable stone has been denounced for the unholy uses to which it has been devoted, and now, at last, each old survivor of the conflict can congratulate himself and reverently say: "I have fought a good fight; I have run my course."

The scourge of the sea has not been storm and wreckage, not battle and bloodshed, not typhus and scurvy, ship fever and dysentery, but more murderous than all these, *wet decks*, not decks wetted by raging sea or drenching rain, but deluged daily and deliberately by the pumps under pretense of cleanliness, and this in defiance of the unanimous protest of the medical officers of every naval service on the globe. In vain they showed how this artificial saturation of the ship's atmosphere was inimical to health. They demonstrated by unerring statistics that a *wet ship was always an unhealthy ship*. They pleaded and protested; they suffered insult and braved court-martial—but the holy-stone kept on grinding out, in daily swing, with sand and water, the lives of men whom wind and sea had failed to mark and mar.

There have been, in recent years, many instances of commanding officers of exceptional intelligence, who have listened to the advice of the medical officers and instituted the practice of shellacking the decks below the water line and cleaning them with hot water cloths and swabs. Captain JOHN MCNEILL BOYD of the British Navy candidly admitted that "the objections to wet decks are supported by the medical officers with such a weight of evidence that they can not be gainsaid." But the upper decks have suffered the infliction of sand and water and holy-stones until a few weeks ago, when the fulmen of the Department consigned them to the scrap-heap, not because they were insanitary and consequently, damnable, but because they wore out the decks and were consequently expensive. *Finis coronat opus*, however it may be accomplished, and hence no sanitarian will repine that the credit be not given to him for having accomplished this crowning achievement of the work of naval hygiene.

The kindred need of marine hygiene, ventilation, has come about through necessity following the construction of the great machine vessels, which have supplanted the white-winged queens of the sea. The almost hermetically sealed floating iron boxes were uninhabitable without constant artificial ventilation established by aspirating tubes and fans, whose motor engines, added to the hundred and more others that fill the interiors of modern battleships and cruisers, encroach upon the air space. With fresh dry air, tempering somewhat the evils of overcrowding, with distilled aërated water, good food and proper clothing, the man of the sea is now far better cared for than his predecessor, Ben Bolt, except when he gets sick or breaks a bone, and then he is stowed away in the same contracted, dark noisy place in the bows, that is, in American men-of-war, where the din of rattling chains and capstans, the odors of the paint room, and the grime and grease of this region, neutralize anodynes and soporifics and keep him keen to suffering. The sites of the hospitals in other services are chosen because of their fitness for their purpose, but with us the suggestion that "she would be nothing but a damned quarantine hulk and had better hoist the yellow flag at once," was urged in the case of one of our finest modern vessels, when the medical departments ought to equip her with the same hospital establishment as English, French, German and Russian vessels of her type.

The hostility to their medical associates by line officers is incredible to civilians and perhaps can only be explained by an original underlying jealousy of the acquirements of a corps, whose humanitarian duties and obligations impel its members to persevere in the face of every opposition, until as in the matter of holy-stoning the decks, their humane objects shall be accomplished. Ultimately, the claims of the sick, as of their care-takers, will be recognized and provision be made for them more in accordance with the enlightenment and philanthropy which characterize this age. Much of the disagreement, as in civil life, doubtless depends upon the inability of non-professional men, who are themselves robust and healthy, to recognize the importance of what seems to them to be only trivial fault-finding by their medical associates, and they attribute to cavil recommendations that conflict with their own, no doubt honestly conceived ideas. The health officer on shore, and the medical officer on board ship, who is preëminently a health officer, have the same up-hill work, but they have at last gained so sure a foot-hold that ere long their views will be heard not in entreaty, but as of those having authority.

THE PHYSICIAN'S WIFE.

The social economy of the physician's life, matrimony makes or mars. The wife either seriously handicaps or aids the physician in practice and his intellectual life. As JEAFFERSON remarks ("Book

about Doctors"): Considering the opportunities that medical men have for pressing a suit in love, the many tempations to gentle emotion that they experience in the aspect of feminine suffering, and the confiding gratitude of their fair patients, it is perhaps to be wondered at that only one medical duke is to be found in the annals of the British peerage.

Prudence would dictate to a physician, endowed with a heart, to treat it in the same way as Dr. GLYNN thought a cucumber ought to be dressed, to slice very thin, pepper it plentifully, pour upon it plenty of the best vinegar, and then throw it away. A sentimental disposition is a great nuisance to a physician. He has quite enough work on his hands to keep the affections of his patients in check, without having to mount guard over his own emotions. According to THACKERAY, girls make love in the nursery and practice the art of coquetry on the page-boy who brings coal upstairs; a hard saying for simple young gentlemen triumphing in the possession of a first love. An English fair dame, who enjoys rank among the highest and wealth equal to the station assigned her by the heralds, not only aimed tender glances and sighed amorously to a young waxen-faced, blue-eyed apothecary, but even went so far as to write him a letter proposing an elopement, and other merry arrangements, in which a carriage everlastingly careering over the country at the heels of four horses, bore a conspicuous part. The silly maiden had, like Dinah, a "fortune in silvyer and gold," amounting to $200,000, and her blue-eyed Adonis was twice her age. Fortunately he was a gentleman of honor. Without divulging the mad proposition of the young lady he induced her father to take her for twelve months for change of air and scene. Many years thereafter when the heroine of this little episode, had become the wife of a very great man, and the mother of children who bid fair to become ornaments to their illustrious race, she expressed her gratitude cordially to this Joseph of physicians, for magnanimity in not profiting by the absurd fancies of a child and the delicacy with which he had taken prompt measures for her happiness. More recently, she manifested her good will to the man who had offered her what is generally regarded as the greatest insult a woman can experience, by procuring a commission in the army for his eldest son.

The embarrassment Sir JOHN ELIOT suffered under from emotional overtures of his fair patients are well known. The quack St. JOHN LONG himself had not more admirers among the elite of high-born English ladies. The King had a strong personal dislike to Sir JOHN, heightened by a feeling that it was sheer impudence in a medical man to capture without effort the hearts of half the prettiest English women and then shrug his shoulders with chagrin at his success. Lord GEORGE GERMAIN had hard work to wring a baronetcy from his Majesty for the victim of misplaced affection.

"Well," said the king at last, grudgingly promising to make ELIOT a baronet, "my lord, since you desire it, let it be; but remember, he shall not be my physician." "No sir," answered Lord GEORGE, "he shall be your Majesty's baronet and my physician."

Sir JOHN, to scare away his patients and patronesses, had a death's head painted on his carriage panels. The result of this on his practice and his sufferings, however, was the reverse of what he desired. One lady, daughter of a prime minister, ignorant that Sir JOHN was otherwise occupied, made him an offer, but learning to her astonishment, that he was married vowed that she would not rest till she had assassinated his wife.

Dr. CADOGAN, of CHARLES II.'s time, was also a favorite with the ladies. He was wont to spend his days in shooting and his evenings in flirtation. The former tastes led him to receive the following poetic dose:

"Doctor, all game you either ought to shun,
Or sport no longer with the unsteady gun;
But, like physicians of undoubted skill,
Gladly attempt what never fails to kill,
Not lead's uncertain dross, but physic's deadly pill."

That he was a good shot is not known, but he was adroit as a squire of dames, since he secured as his wife a wealthy lady over whose property he had unfettered control. Against the money, however, there were two important points that had to be "set off;" the bride was old and querulous. Such a woman was unfitted to live happily with an eminent physician on whom bevies of court ladies smiled. After spending a few months in alternate fits of jealous hate and jealous fondness, the poor creature conceived that her husband was bent on ridding his life of her execrable temper by poison. One day, surrounded by her friends, in the presence of her lord and master, she fell in a hysteric spasm exclaiming: "Ah, he has killed me at last: I am poisoned!" "Poisoned," cried the lady friend, turning up the whites of her eyes, "Oh, gracious goodness, you have done it, Doctor!" "Of what do you accuse me?" asked CADOGAN, with surprise. "I accuse you of killing me-ee," responded the wife, doing her best to imitate a death-struggle. "Ladies," answered the Doctor, with admirable nonchalance bowing to Mrs. CADOGAN's bosom associates, "it is perfectly false. You are quite welcome to open her at once, and then you'll discover the calumny."

JOHN HUNTER administered a scarcely less startling reproof to his wife, who, though devoted to him, and in every respect a lady worthy of esteem, caused HUNTER at times no little vexation by her fondness for society. She was in the habit of giving enormous receptions, at which authors and artists of all shades

used to assemble to render homage to her far from commonplace literary powers. HUNTER had no sympathy with his wife's poetic aspirations, still less with the society which those aspirations led her to cultivate. Grudging even the time which the labors of practice prevented him from devoting to the pursuits of his museum and laboratory, he naturally could not restrain his too irritable temper (due to cardiac disease) when Mrs. HUNTER'S frivolous amusements deprived him of the quiet requisite for study. Even a fee that called him from his dissecting instruments could not reconcile him to interruption. "I must go," he would say reluctantly, "and earn this d—— guinea, or I shall be sure to want it to-morrow." Imagine the wrath of such a man, finding on return from a long day's work, his house full of musical professors, connoisseurs and fashionable idlers, in all the confusion, hubbub and heat of a grand party, of which his lady had forgotten to inform him. Walking straight into the middle of the reception room, he surveyed his unwelcome guests, surprised to see him dusty, toil-worn and grim, so unlike what the man of the house ought to be on such an occasion. "I knew nothing," was his brief address, "I knew nothing of this kick-up and I ought to have been informed of it beforehand; but as I have now returned home to study, I hope the present company will retire." Mrs. HUNTER'S drawing-rooms were speedily empty.

One of the drollest medical love stories relates to Dr. THOMAS DAWSON, a century since alike admired by the inhabitants of Hackney as a pulpiteer and physician. Of his acquaintances Miss CORBETT of Hackney was at the same time the richest, most devout and most afflicted in health. Ministering to her body and soul, Dr. DAWSON had frequent occasion for visiting her. One day he found her alone sitting with the large family Bible before her, meditating. Dr. DAWSON read the words to which her right forefinger pointed, the words of NATHAN to DAVID: "Thou art the man." The Doctor took the hint; May 29, 1758, he found a wife, and the pious lady won a husband.

The day ABERNETHY was married he went down to the lecture room to deliver his customary instructions to his pupils. His selection of a wife was as judicious as his marriage was happy. The funny stories long current about his mode of "popping the question" are known to be most delusive fabrications and extreme exaggerations. The brutality of procedure attributed to him by current rumor was foreign to his nature. The ABERNETHY biscuit was not more audaciously pinned upon his reputation, than was the absurd falsehood that, when he made his offer to his future wife, he had only seen her once, and then wrote saying he should like to marry her, but as he was too busy to "make love," she must entertain his proposal without further preliminaries, and let him know her decision by the end of a week.

One type of wife different from these is drawn by Dr. WEYMOUTH in "Over the Hookah:"

"Speaking of the selection of wives, I know one doctor, a type of a hundred others, who evidently had an eye to windward when he married. The lady in the case is a past mistress of diplomacy and medico-political intrigue, beside whom DISRAELI'S reputation and MACHIAVELLI'S malodor are weak indeed. She belongs to several churches and to card and social clubs galore, and makes a specialty of drumming up practice for 'my doctor.' The doctor rarely goes out with her—he don't have to; she can do business better with him out of the way. It is embarrassing, you know, just as she is in the midst of a peroration descriptive of the latest exploit of this modern HIPPOCRATES, to have the dried up, microcephalic, weasened little animal appear in evidence.

"'Do you know, ladies, I am afraid my poor doctor is going to work himself to death. Why, he was out three whole nights last week, and didn't have a wink of sleep. A prominent lady on Michigan Avenue (the patient is always prominent and lives on Michigan Avenue or Astor Street or in some equally fashionable locality) had an attack of appendicitis and had been given up by five doctors before my doctor saw her. She pulled through, but my doctor says that if the family had delayed sending for him just thirty minutes more she would have died.'

"Now as a matter of fact, my boy, remarks Dr. WEYMOUTH, I once overheard this lady in the midst of a similar yarn, when I happened to know the circumstances. In the first place, that doctor couldn't lance a 'gum-boil' without endangering the internal carotid, and in the second place, those three nights were spent in discussing the relative merits of 'two pair,' and 'three of a kind.' He did make several calls, of the other fellow's hand, you know, but the only ladies he saw were a choice variety of queens, hearts, clubs, spades and diamonds. They didn't live on Michigan Avenue either, but he found those particular lady patients in a cosy corner of the M—— club."

This type in its best qualities caricatures the nobler, truer picture of the American physician's wife, drawn by Dr. CLAIBORNE in an address before the Virginia Medical Society. The Virginia physician, with whose wife Dr. CLAIBORNE deals, was always known as a family man. He usually married early in life and with the advantages of social position, wealth and culture, the latter sharpened and improved by travel, a privilege not so common or easy then as now, was considered an eligible party and had no difficulty in securing a desirable partner. But he was often, indeed, generally away from home, physicians being few and the distance between the homes of his patients often great. On the mistress of the mansion therefore devolved more than her share of domestic duties. If his home were on a plantation or in a country town—even then a plantation and negroes were essentially a part of a gentleman's estate—the management of affairs in general, in conjunction perhaps with an overseer, devolved upon her to a great extent. She was known as a business woman and as the characteristic lavish hospitality called to the doctor's house a retinue of visitors and retainers on occasion and without occasion, upon her devolved, in his frequent and protracted absence, their reception and entertainment. In dispensing these offices she was to the manner born. As the daughter of an old Virginia gentleman, and only such a woman could have filled the heart and fitted the fortunes of the old Virginia physician, she was in her native sphere when playing the gracious hostess and the doctor trusted her with a faith born not only of personal

devotion but of pride in her preëminent fitness for her place. As the mother of his children he consigned to her with perfect trustfulness all the responsibilities of their management, their habits, their morals and their education. Even in their sickness, often succumbing to the habit of perfect confidence in her wise and judicious management, he left her to do the dosing of the family and she would give a dozen doses of physic to his one. She was not only literally but liberally his helpmate.

SERUM DIAGNOSIS OF TYPHOID FEVER.

In an article on the serum diagnosis of typhoid fever which appeared in our issue of October 31, page 962, we called attention to the action of one of the provincial boards of health of Canada in testing the practical utility of Dr. WYATT JOHNSTON'S method of dealing with a little dried blood from the lobe of the ear or the tip of the finger of the patient under observation. We concluded our remarks by saying that no doubt other boards of health would take up the subject and aid in the advance of our knowledge of typhoid fever and other febrile conditions. The promptness with which Dr. JOHNSTON'S experiments have been verified shows that we did not over-estimate the energy of the bacteriologists in ever striving after something new, nor the enterprise of the health authorities in utilizing their work. Recent experiments in the bacteriologic laboratory of the Army Medical Museum, Washington, D. C., have given results which inspire confidence in the method. The test is based on the action of the blood serum of a typhoid fever patient, or the liquid obtained by moistening a dried blood drop from such a patient, on the typhoid bacilli of a pure bouillon culture. The active movements characteristic of the typhoid bacillus in liquid cultures are promptly stopped and the bacilli become aggregated into groups or masses. These results are not produced by the blood of a person in health. Dr. WALTER REED, U. S. Army, conducted the experiments at the suggestion of Surgeon-General STERNBERG. He examined twenty-eight cases of suspected typhoid fever and obtained twenty-two positive and six negative results. The patients were in various stages of the disease, but most of them had passed the second week and a few were convalescent. In two of the negative cases the estivo-autumnal malarial parasite was found; a third case was shown at the post-mortem examination to have been one of general peritonitis, originating in disease of the appendix; a fourth case was probably one of tubercular disease of the brain in a child. Concerning the two remaining negative cases the conclusion was reached that they were probably not typhoid fever cases. In view of these successful results the Surgeon-General has called upon medical officers in charge of post hospitals to forward to Washington, D. C., samples of blood from febrile cases of undetermined causation with a full clinical record of each case submitted to the bacteriologic test. Glass slides in suitable slide boxes have been issued for the transmission of the samples. This, it is believed, will aid in defining the character of the febrile cases sometimes reported as simple fever, continued fever, typhomalarial fever, Texas fever, mountain fever, etc., and will enable medical officers to recognize the existence of typhoid in cases clinically obscure without having to wait for a postmortem opportunity of demonstrating the pathognomonic lesion.

The Health Department of the City of New York also has moved in this direction. Mr. HERMANN M. BIGGS, the bacteriologist in charge of its laboratory, was authorized Nov. 6, 1896, to place facilities at the command of local physicians for the diagnosis of their obscure cases. The Health Department of Chicago has issued an unsigned circular giving the history of this method of diagnosis, which was distributed at the last meeting of the Chicago Medical Society (November 16).

LIBRARY WANTS AND SUPPLIES.

In another column we publish the first of a series of lists of periodicals and books either desired by public medical libraries or that will be given to such libraries in furtherance of a work undertaken by Dr. GOULD of Philadelphia.

It should be most earnestly brought home to the conscience of the profession that we need more and better public medical libraries, and that there is annually wasted most valuable literature which, with a little care and system might be made highly serviceable to medical science and progress. Every year the private libraries of physicians are being scattered or sold for old paper, while public reference-libraries are in the greatest need of the same material for completing their files or sets. Wishing to do what is possible for the purpose Dr. GOULD has in view, we call especial attention to this most commendable enterprise. It is Dr. GOULD'S intention to act as the intermediary between libraries and donors, in order that books or files of medical journals of physicians may not be destroyed, and that public libraries may be multiplied and their shelves filled with works which each year become more and more valuable.

Upon the death of a physician, friends should use their influence to have his library utilized in this way. The better plan is for the owners during life to so arrange for the proper disposal of the books, etc. Every medical society, the physicians of every city, village, or county, should consider it an important duty they owe their profession to encourage the formation of a public medical library. It does not enter into Dr. GOULD'S plan to supply private libraries; but on the contrary to guide the private library to its

proper destination, the public library. Neither is it, except in peculiar circumstances to buy or sell. The entire service is gratuitous, aiming to help those who wish to give, to place their gifts where there is promise of the greatest professional benefit. Already Dr. GOULD has been able to supply libraries with several thousand numbers that would otherwise have been wasted.

We most cordially commend the scheme and trust our readers will bear it in mind, preserve the published lists, and whenever any occasion may arise, to correspond with Dr. GOULD. Librarians of public libraries should classify and make lists of the duplicates they will give away to other libraries, or exchange for others needed to complete their own files.

CORRESPONDENCE.

A Prevalent Error in Refraction Work.

MINNEAPOLIS, MINN., Nov. 16, 1896.

To the Editor:—I have been strongly impressed for some years with the fact that many oculists, some of whom are scientific and careful men, are in the habit of over-correcting plus refractive errors. For a shorter period I have been convinced that most oculists, myself included, have been giving low plus cylinders where minus lenses were indicated.

This error has grown out of the teaching of our text books that at six meters or twenty feet the rays of light are approximately parallel, and that for the correction of refractive errors the strongest plus or the weakest minus glass should be given which give the clearest vision at this distance.

Charles S. Bull, I think, called attention to the fact this rule would lead to an over-correction of .25 D. in the case of H., but the fact has evidently not been sufficiently impressed. With a less distance than 20′ the error is evidently greater, and as a large number of oculists have not more than 15′ at their disposal, unless some efficient method is at hand for checking and correcting their findings, serious trouble is likely to result. The retinoscope is a very efficient check if one has sufficient skill and confidence in his findings, and if as a final test the patient is made to look across the street while weaker and stronger lenses are alternately placed before the eye, the surgeon may be absolutely sure of his results.

While the giving of a too strong plus lens is bad enough, the other error mentioned, the giving of a low plus cylinder where a minus glass is demanded, is in some cases even more disastrous, and is unfortunately a very common error. After I had become fairly proficient in the use of the plane mirror as a retinoscope, I found that in cases where reversal of the shadow was induced by a weaker plus lens than 1 D., in one or more meridians, my patient would generally accept a +.50 or +.25 cylinder, and as my veneration for authority was stronger than my confidence in my retinoscopic results, he always got a plus cylinder. Most of my patients were satisfied that they had got the best correction possible. With the few exceptions I always found some heterophoria and satisfied most of them with muscle training. During all this time I was suspicious of my results in certain of these cases. In hyperopic cases where the retinoscope indicated a considerable degree the trial lens findings were consistent with the retinoscopic, while in the class of cases under consideration I knew they were not consistent.

In May, 1894, X., a clergyman, consulted me, complaining of eye and headache and general nervousness. He had had trouble for years and was able to do his work only with great difficulty. He had been under the care of prominent oculists in Milwaukee and Chicago. In 1892 Dr. B. of the latter city had given him +.75 ⊃ +.50 C. vert., which he had been able to use with some relief in his work. In 1893 Dr. Hotz had ordered constant use of +.50 C. vert. He had also ordered the use of prisms for work. I found 2° prisms base in. Whether they were so ordered is uncertain. Dr. Hotz's prescription had given decided relief for a time, though the ability to work had remained limited.

I found R. 20-30, L. 20-20, slightly improved in each eye by +.50 C. vert. Latent R. hyperphoria .5°. Esophoria at 20′ 1°. At 13″ exophoria 6°. Abduction 3°, adduction 60°. Under atropia +.50 C. vert. was still accepted, improved vision somewhat and no change was made. Retinoscopic test under atropia was as follows: With plane mirror at 40″ R. both meridians — and both became + with —.25. L. both meridians +, vertical reversed by +.25 and horizontal by +.50, a showing that ought to have suggested minus lenses to any man who was less under the power of authority—but Dr. Hotz's R. of +.50 C. vert. was continued, and with muscular exercises the patient was made comparatively comfortable for another year, when he collapsed. I had then made up my mind that I had been doing faulty work in these cases, so I examined him again and found that he would accept —.50 C. hor., and that vision was decidedly better than with the plus glass. He was given the new correction, and has been in better condition since beginning their use than for many years. Several other patients have been given weak minus cylinders for whom in former years I had ordered plus cylinders, and with uniformly good results.

As I have been writing, a lady came in and reported relief from the use of —.25 C. hor. She had been ordered by some optician +.75 S. for work. She could read with comfort, but the nervousness and sick headaches continued. Under homatropia the retinoscopic findings were as follows: Horizontal and vertical meridians both eyes +. Reversed in R. by H. +1.25 and V. +1; in L. by H. +.75 and V. +.50. These findings clearly indicate a minus quarter cylinder, and such a glass with axis 45° temporal was accepted and gives complete relief, in spite of the presence of a right hyperphoria of 1.5°. A still later case is Mrs. D., whom Dr. Würdemann of Milwaukee gave +.25 ⊃ +.25 C. V., which gave relief for six months. I find retinoscopic test to give in both eyes —, vertical reversed by +.25, horizontal by +.75. —.25 C. 75° temporal improves distant vision, makes reading easier than with Dr. Würdemann's compound plus lenses, and also gives as much relief from the glare of lamp and sunlight as the tinted +.25 S. given by Dr. Bradford of Boston. The mention of other oculists by name is in no spirit of criticism, but simply to show that other men, and competent ones, have been making these same mistakes.

EDWARD J. BROWN, M.D.

"Parasite and Host."

PHILADELPHIA, Nov. 16, 1896.

To the Editor:—Your editorial entitled "Parasite and Host" in your issue of November 14 should be read, pondered and inwardly digested by every member of the American profession. I can heartily subscribe to every word of it so far as relates to one publishing house. It is, however, gratifying to know that medical publishers are generally not guilty of the (medical) sin you so justly stigmatize, and that as a rule they are either sufficiently courteous or politic to recognize their duty to the medical profession. In this connection it is espeally noteworthy that I have heard nothing of any disinclination upon the part of the one publishing firm which pays its contributors for articles published in its journals. How much more astonishing therefore is the stand taken by our publisher who pays contributors nothing ("not even reprints"), that the

matter and illustrations of articles given him shall not be reproduced by another publisher! As a physician I would not edit a journal using unpaid contributions that refused physicians the right to reproduce their articles when and where they pleased. As you pertinently observe, the object of a physician in publishing his article is to tell every medical man the results of his studies, but no periodical has a circulation more than one-tenth of the total number of physicians of our country, therefore any other means that may arise for insuring a still greater publicity is desirable, and any attempt on the part of a publisher to limit the reproduction of articles gratuitously furnished him is clearly against the author's interest and that of medical science. I cordially endorse your suggestion that in contributing to medical journals every writer make it a clearly-defined and accepted stipulation that the right to reproduce the article and its illustrations shall be free to all.

In editing the *American Year-Book of Medicine and Surgery* every publisher but one has recognized the rights of authors and of the profession as regards abstracts, extracts and the reproduction of illustrations. Curiously enough the one who refused this was one who pays its contributors nothing for their articles. As it happened, also, some of these very articles first published in the journals of this firm were written by departmental editors of the *Year-Book*. Thus an author was refused the right of using his own article because he had first given it to a lay medical journal! The *Year-Book* reaches thousands of readers that the journal can not expect to reach, and it will be remarkable if authors hereafter permit themselves to be caught in such a trap. You are correct in suggesting to the profession that it should look more sharply after its own interests, and should encourage *journals of, for and by the profession*. Cordially yours, GEO. M. GOULD, M.D.

119 South Seventeenth Street.

BOOK NOTICES.

Important Notice Concerning Library Wants and Supplies.

Notice to Medical Men, and Librarians of Public Medical Libraries.

[Medical journals are requested to publish this notice.]

1. All correspondence in relation to the enterprise should be addressed to Dr. Geo. M. Gould, 119 S. 17th Street, Philadelphia, Pa.

2. Librarians of public medical libraries are requested to forward: 1. Accurate lists of periodicals, books or pamphlets needed to complete their files. 2. Lists of duplicates which they will give other libraries or exchange for numbers desired. *Give both volume numbers and dates of periodicals.*

3. Owing to the additional labor it would involve, queries concerning the supply of desired items to *private* libraries can not be answered.

4. The conditions of all gifts are that the recipients shall be reputable organizations, composed of the regular medical profession; that the library shall be a public one, *i.e.*, open for consultation during stated times to physicians generally; and that, if unbound, the periodicals and books received shall be bound and catalogued.

5. Every physician is invited to give the books and periodicals for which he has no further use to public libraries, and having no particular choice, to correspond with Dr. Gould in reference to their disposal in order to secure the greatest usefulness by the profession.

6. Send nothing before corresponding, in order that the gifts may go direct from the donors to their proper destination.

7. In order to secure the best success, physicians and librarians of other countries are invited to coöperate.

FOR PRESENTATION.

Librarians needing any of the following volumes (all numbers inclusive) to complete their files are requested to apply for them:

American Journal of Medical Sciences, 1879 to 1890, except 1887, which is missing.

AMERICAN MEDICAL ASSOCIATION, Reports and Transactions, 21 odd volumes, 1847-8-53-55-56-66-68 to 76 and supplement volumes 1876 to 82.

American Clinical Lectures, Vol. 2 (1876).

American Medical Journal, 1884.

American Medical Times, Vols. 1 and 2 (1860–61).

American Public Health Association Reports, etc., Vols. 1 to 17.

One } Archives of Scientific Practical Medicine, Vol. 1 (1873).
Vol. } Chicago Medical Journal, Vol. 28 (1871).

Boston Medical and Surgical Journal, Vols. 94 to 99 (1876-78).

Braithwaite's Retrospect, Vols. 50 to 89.

Canada Lancet, Vol. 8 (1876).

Chicago Medical Journal and Examiner, Vols. 27 (1870); 33 (1876); 34, 35 (1877).

Cincinnati Lancet and Obstetrics, Vols. 18 and 19 (1875-76).

One } Canadian Journal Medical Science, 1876.
Vol. } London Medical Record, part of 1873.

Detroit Medical Review, Vol. 10 (1875–76).

Gaillard's Medical Journal, Vols. 46 and 47 (1888).

Journal of Nervous and Mental Diseases, Vol. 3 (1876).

Louisville Medical News (in one volume), Vols. 1, 2 and 3 (1876–77).

Medical News, Vols. 31 to 39 (1873–1881); also Vols. 43 to 47 (1883–85); Vols. 50 and 51 (1887), and Vols. ——— (1860–72); Vol. — (1880); Vols. ——— (1883–89); Vols. ——— (1891-95).

Medical Gazette, Vol. 4 (1870).

Medical Record, 4, 5, 6, 7 (1869–72), 12 (1877); (1890-93).

Medical and Surgical Reporter, Vols. 34, 35, 36 (1876-7), (1885–89.)

Monthly Abstract Medical Science, Vols. 2, 3, 4 (1875–77).

New York Medical Journal, Vols. 22, 23, 24, 25 (1875–77).

Obstetrical Journal of Great Britain and Ireland, Vols. 3, 4, 5, 6 and 7 (1875–7).

One volume miscellany.

Peninsular Journal Medical, Vol. 1 (1876).

Philadelphia Medical Times, 1870–1879, and 1882–1887.

Proceedings Philadelphia County Medical Society, Vols. 1 to 15 (1876–94).

Polyclinic, July to June, 1883–89.

Practitioner, The, 1868, July to December; 1869–73; 1877–94.

Quarterly Epitome, 1 to 20.

Reports and Transactions International Medical Congress in London, 1881. Four volumes.

Richmond Medical Journal, 1866–69.

Transactions of College of Physicians, 1889, 1890.

Transactions of Medico-Psychologic Association, 1895, Denver.

Transactions of Medical Society of Pennsylvania, 1865–1894. Twenty-five volumes.

Transactions of Medical Society of Virginia, 1896.

University Medical Magazine, October 1888 to September 1889.

FOR SALE.

The following volumes may be had at exceptionally low rates. Prices made upon application. These sets were bought remarkably cheap and will be sold at cost, but only to public medical libraries. Private buyers need not apply.

American Journal of the Medical Sciences, unbound, complete from November 1827 to December 1895.

London Medico-Chirurgical Transactions, complete, in cloth, from Vol. 1 to 77, with catalogue and index.

British and Foreign Medical Review, Vols. 5 to 24 (1836-47), and an index volume. In half-calf.

Johnson's Medico-Chirurgical Review, Vols. 1 to 42, including the years 1820–1843 in the old series and a continuation of six volumes in the new series, 1843-47. Cloth.

American Journal of Obstetrics and Diseases of Women and Children from the commencement in 1868 to 1895. Unbound.

PERIODICALS REQUIRED TO COMPLETE SETS.

The Library Committee of the McGill University, Montreal, will be grateful for any of the following periodicals, which should be addressed to the Library, Medical Faculty, McGill University:

American Journal of Obstetrics, The—Vol. 1, No. 7.

American Practitioner and News—Vol. 17, Nos. Dec. to June; Vol. 18, Jan. to July.

Anatomie und Physiologie, Hyman und Schwalte—All before Bd. 13, 1886.

Annals of Surgery—Vol. 5, Nos. 1, 2, 3, 4, 6; Vol. 6, Nos. 4, 5; Vol. 7, Nos. 1, 2; Vol. 8, Nos. 1, 2, 3, 5, 6; Vol. 9, Nos. 1, 2, 4, 5, 6; Vol. 10, Nos. 1, 3, 4, 5, 6; Vol. 12, Nos. 1, 2, 3, 4, 5; Vol. 13, Nos. 1 to 6; Vol. 14, Nos. 1 to 6; Vol. 15, Nos. 1 to 6; Vol. 16, Nos. 1 to 6.

Archiv für experimentelle Pathologie und Pharmakologie—All before 1881; Bd. 13, Heft. 2; Bd. 17, Heft. 5; Bd. 18, Heft. 1 to 6; Bd. 19, Heft. 1, 6; Bd. 20, Heft. 1 to 6.

Archiv für Klinische Chirurgie—All before 1876 and after 1877 to 1884; Band 33, Heft 3; Band 45, Heft 2, 3, 4.

Archiv für Mikroskopische Anatomie—All before 1886.

Archiv für Pathologische Anatomie und Physiologie und für Klinische Medicin, von R. Virchow—All before 1881; Bd. 87, Heft 2; Bd. 89, Heft 2, 3; Bd. 102, Heft 3; Bd. 108, Heft 1.

Archives of Surgery—All before 1890.

Berliner Klinische Wochenschrift—All before 1880; Vol. 88, Nos. 1 to 40.

Brain—Vol. 9 and from Vol. 11.

British Journal of Dermatology—All before 1891; Vol. 6, No. 5.

Canada Lancet, The—Vol. 1, Vol. 2; Vol. 23, Jan. Feb. July; Vol. 24, Oct.; Vol. 26, Sept., Oct., Nov., Dec.; Vol. 27, Oct., Jan., March and June.

Canada Medical Record—Vol. 2, No. 4 and index; Vols. 13 to 18, want index; Vol. 19, Nos. 6, 7; Vol. 20, Nos. 1, 2; Vol. 21, Nos. 2 to 12; Vol. 22, Nos. 1, 2, 3, 4, 5, 7, 8, 9, 10, 11.

Centralblatt für Bakteriologie und Parasitenkunde—Bd. 14, No. 15; Vol. 10, No. 9; Vol. 11, No. 25.

Centralblatt für Chirurgie—All before 1886.

Climatologist, The—Vol. 1, Nos. 1, 5; Vol. 2, No. 5, and all after.

College of Physicians, Transactions of the—All before 1879.

Congress of American Physicians and Surgeons, Transactions of the—All before 1891.

Deutsches Archiv für klinische Medicin—Vol. 54.

Deutsche medicinische Wochenschrift—All before 1886; Vols. 1891-93.

Dominion Medical Monthly—1893, No. 6; 1894, No. 6.

Edinburgh Medical Journal, The—Vol. 16; Dec. 1894; April, 1895; June, 1895.

Gazette Médicale de Montreal, La—Vol. 1.

Gynecological Journal—All after 1872.

Gynecological Transactions—Vols. 3, and all after 1881.

Guy's Hospital Reports—Series 3, Vols. 16, 25.

St. Bartholomew's Hospital Reports—Vols. 27, 28.

Royal London Ophthalmic Hospital Reports—Vol. 5, Part 3; Vol. 10, Part 2; Vol. 11, Part 3; Vol. 12, Part 3; Vol. 13, Index.

Jahresbericht über die Fortschritte der Anatomie und Physiologie—Bd. 12.

Jahresbericht über die Leistungen und Fortschritte in der Gesammten Medicin—All before 1882; Band 2, Abth. 3.

Journal de l'Anatomie et de la Physiologie—All before 1886.

Journal of the American Medical Association—Vol. 2, Feb. 2-16, May 24; Vol. 3, July 26, Sept. 20, Oct. 11-18 25, Nov. 1; Vol. 4, Jan. 10, 24, April 25; Vol. 5, July 18, Sept. 12 19, Oct. 3, Nov. 28, Dec. 19; Vol. 8, Jan. 1, March 19, April 9-16-23-30, May 7-21, June entire; Vol. 9, July 9-16-23, Aug. 6-13-20, Sept. 10, Oct. 8, Nov. entire, Dec. 3 10-17; Vol. 11, July 21, Sept. 8, Oct. 6, Nov. 24; Vol. 12, Jan. 12, Feb. 16-23, April 27, May 4, June 8; Vol. 13, Aug. 10, 24, 31, Sept. 7, Oct. 26, Nov. 9, Dec. 7-14; Vol. 14, Jan. entire, Feb. 1-22, March 8-15-22, April 19-26, May 24-31, June entire.

Journal of Cutaneous and Genito-Urinary Diseases—Vol. 2, Vol. 3; Vol. 4, Nos. 1, 4 to 12; Vol. 6. Nos. 5, 8, 9; Vol. 7.

Journal of Cutaneous and Venereal Diseases—Vol. 1, Nos. 3, 4, 8, 10, 11, 12; Vol. 2, Nos. 1, 2; Vol. 4, Nos. 1, 2, 3, 10, 11.

Medical News, The—All before 1882.

Medical Record, The—All before 1875.

Montreal Medical Gazette—Vol. 1.

New York Medical Journal, The—All before 1883; 1885, Nos. 1, 2; 1886, Nos. 1, 2; 1887, Nos. 1, 2; 1888, Nos. 1, 2.

Ontario Medical Journal, The—Vol. 1; Vol. 2, Nos. 1, 6; Vol. 3.

Ophthalmological Society of the United Kingdom, Transactions of the—Vols. 1, 2, 3.

Pathological Society of London, Transactions of the—Vols. 1, 2, 3, 20.

Pharmaceutical Journal and Transactions—Second series, Nos. 4, 5, and all after 1886.

Practitioner, The (London)—Vol. 29.

Revue de Chirurgie—All before 1886.

Revue de Médecine—Tome 3, No. 2; Tome 4, No. 1; Tome 5, Nos. 2, 3.

Revue des Sciences Médicales—Tomes 1, 6, 10, 26.

Royal Academy of Medicine in Ireland, Transactions of the—Vols. 1, 2, and all after 1888.

Sanitarian, The—Vol. 31, Sept.; Vol. 32, March, June, July, Oct., Nov., Dec.

Schmidt's Jahrbücher—All before 1884.

Société de Biologie—Tomes 2, 3, 4, and all after Tome 5.

Therapeutic Gazette, The—All before 1881; Vol. 14, Nos. 5, 11, 12; Vol. 17. Nos. 1, 2, 3, 4, 8, 12; Vol. 18.

Union Médicale, L'—Vol. 7, Nos. 2, 8; Vol. 8, No. 12.

Year-Book of Pharmacy—All before 1870 and after 1880.

Zeitschrift für Klinische Medicin—Band 4, Nos. 3, 5, 6; Band 8, No. 4; Band 9, Nos. 10, 11, 12; Band 13, Nos. 1, 6; Band 14, Nos. 4, 5, 6.

The Practice of Medicine. By Horatio C. Wood, A.M., M.D., LL.D., and Reginald H. Fitz, A.M., M.D. Philadelphia: The J. B. Lippincott Co. 1896.

Anything emanating from the pen of two of the most distinguished American physicians, as these are, would attract attention, and this book, which has been prepared by perhaps our ablest pathologist and our ablest clinician, is one which will be a credit not only to the English language in which it is written, but to America, and will undoubtedly be received abroad as the highest type of an American production. The style of the work is naturally somewhat dogmatic, but its careful condensation compensates for this, as there is nothing superfluous in the book from beginning to end. A clean-cut statement of the conviction of the authors and the state of their knowledge on the subjects treated is given.

In the treatment of typhoid fever we notice that the book gives little space or consideration to the so-called antiseptic treatment. Indeed, it is not mentioned as such, although turpentine, one of the most robust antiseptics, is still adhered to by Dr. Wood, as it was by his uncle who introduced it. We notice with some surprise in the formulary in the appendix that the old dose system has been used, although Professor Fitz himself is a Boston man; it is the home of the American metric bureau, and the active center of its propaganda. The book will remain a favorite for many years to come.

A Text-Book of Materia Medica, Therapeutics and Pharmacology. By George F. Butler, Ph.G., M.D., Professor of Materia Medica and of Clinical Medicine in the College of Physicians and Surgeons, Chicago, etc. Price, cl., $4; 8vo, pp. 858. Chicago agent, W. T. Keener. Philadelphia: W. B. Saunders. 1896.

Dr. Butler has produced a very creditable book, and one that in our judgment is destined to become popular. The contents of the book include: 1, pharmacology and general therapeutics; 2, pharmaceutic preparations; 3, disease medicines; 4, antiseptics: 5, symptom medicines; 6, topical remedies.

That too little attention to materia medica is given in these degenerate days we think there is no question, and although there are already several excellent works on therapeutics on the market, we are not likely to have too many. We commend the author for having modernized his book by adopting the Romanesque pronunciation, and designating the precise orthoëpy for all the names; for the use of the decimal system throughout and for having conveniently placed the genitive form after each official name. These features will be of great use to students. That the work is quite up to date is seen by the section on organo-therapy and serumtherapy. We are of impression that the French quotations, such for example, as the ones from Bernheim on pages 271 and 293 should have been translated into English, especially as there is a typographic error in the first. Taken as a whole the book may fairly be considered as one of the most satisfactory of any single-volume work on materia medica on the market.

A Treatise on Surgery by American Authors. For Students and Practitioners of Surgery and Medicine. Edited by Roswell Park, A.M., M.D. Vol. II. Special or Regional Surgery, with 451 engravings and 17 full-page plates in colors and monochrome. 8vo, cloth, pp. 804. Philadelphia and New York: Lea Bros. & Co. 1896.

The contributors to Vol. II are Drs. Park, E. H. Bradford, Duncan Eve, D. Bryson Delavan, Edmond Souchon, Frederick S. Dennis, A. D. Bevan, M. H. Richardson, Farrar Cobb, Chas. B. Kelsey, W. T. Belfield, James H. Etheridge, Chas. B. Parker, Rudolph Matas, Robert W. Lovett, Arpad G. Gerster, Chas. S. Bull and Clarence J. Blake.

The work is characterized by thoroughness of detail and breadth of general knowledge. The many excellent works on

surgery now on the market (International, Dennis' System, Moullin, American Text-book, Treves) prevent our quoting this as the best, but there are few that surpass it in general utility. The authors have done well in escaping the old rut, by providing so many original illustrations, and the publisher has given the text a handsome setting. There is some unevenness between the articles, perhaps inseparable from joint authorship, but some of the chapters are of exceptional merit.

The work as a whole compares favorably with other recent American works, and is a creditable addition to current medical literature.

Medical Jurisprudence, Forensic Medicine and Toxicology. By R. A. WITTHAUS, A.M., M.D., and TRACY C. BECKER, A.B., LL.B., and a staff of collaborators. In four royal octavo volumes. Volume IV., Toxicology. New York: William Wood & Company. 1896.

The completion of this volume adds another magnificent work on jurisprudence to the already creditable list of American works on the subject.

We have recorded our favorable opinion of the first three volumes of this series. This volume, devoted entirely to toxicology, is not only equal to its predecessors, but in some respects the most interesting. The chapter on the history of poisons, by way of introduction, is a credit to American medical literature.

The practical value of this work has been much increased by the copious index at the end of each volume.

Anatomical Atlas of Obstetric Diagnosis and Treatment. By OSCAR SCHAEFFER, M.D. With 145 illustrations; 12mo, cl., pp. 234. New York: William Wood & Co. 1896.

This volume adds another useful volume to the excellent series of atlases published by this well-known firm. The book, says Dr. Schaeffer, "deals with the morphology of the female pelvic organs as the anatomic basis of the physiologic and pathologic phenomena of pregnancy and labor." From this basis the diagnosis is deduced and the pathologic changes can be estimated. The book is much more than an atlas, for the accompanying text is very instructive. Gentlemen preparing for examinations will find the work invaluable, and practitioners will be able to refresh their obstetric knowledge with some additions by its perusal.

Fourteenth Biennial Report of the State Board of Health of California, for the fiscal years from June 30, 1894, to June 30, 1896. Also, the Transactions of the Fourth Annual Sanitary Convention held at Los Angeles, April 20, 1896. Sacramento: A. J. Johnston, Superintendent of State Printing. 1896.

There are more voluminous reports than the one under consideration, but there are few that show more intelligent supervision of public health. In addition to the statistic tables showing the mortality of various diseases throughout the State, there are special reports from committees appointed to investigate various public institutions, and the papers read at the annual State sanitary convention. Dr. W. F. Wiard of Sacramento is president and Dr. J. R. Laine of Sacramento is secretary.

Transactions of the Texas State Medical Association, Twenty-eighth Annual Session, held at Fort Worth, Texas, 1896. Paper, pp. 470. Printed for the Association. 1896.

This handsomely printed volume tells a pleasant story of the great activity of the Texas profession in medical progress and the advancement of science. The business features of the meeting were mostly of local interest, although we notice resolutions reaffirming their adhesion to the Code of Ethics of the AMERICAN MEDICAL ASSOCIATION and favoring the transfer of the State quarantines to the National Government. The papers are of a high order; among those of home production we notice articles respectively by Drs. J. M. Cline, A. H. Schenk, W. R. Blailock, H. L. Tate, David Cerna, C. O. Matthews, Lawrence Ashton, J. J. Williamson, W. M. Yater, J. E. Gilchrist, W. J. Lane, Z. T. Bundy, Henry P. Cookes, F. E. Daniel, T. J. Bell, R. R. Walker, A. W. Fly, F. S. White, J. Aloysius Mullen, J. O. McReynolds, H. L. Hillgartner, E. J. Mathery, G. W. Grove, R. F. Miller. V. H. Hulen, Geo. H. Lee and R. W. Knox. Authors from New York, Philadelphia, New Orleans and elsewhere, contributed to the volume, which has been carefully edited by the accomplished secretary, Dr. H. A. West of Galveston.

Twenty-seventh Annual Report of the State Board of Health of Massachusetts. Bds., pp. 808, 8vo. Boston. 1896.

The annual reports of this Board have always taken the front rank among publications on sanitary subjects. Indeed it is not too much to claim for this Board that from its beginning in 1870 the reports issued have served as a model. The routine work as set forth in the current volume shows that the cities and towns of the Old Bay State appreciate the work of their Board of Health, and have year by year learned to depend more and more upon their advice in all matters affecting their respective municipalities. Nor is this aid to municipalities the sole good accomplished; every year some new topic of public hygiene is made a prominent feature of the report, with the effect of materially adding to our knowledge of the subject. Last year it was water filtration and the results of the experiment stations, and this year the accounts are continued. A favorable judgment of the use of diphtheria antitoxin is recorded, based on abundant observations. The experiments upon the purification of sewage at the Lawrence have been continued. The Massachusetts commonwealth is really benefiting the other States by the maintenance of this now famous station almost as much as herself. Those interested will find careful studies of the question of the permanency of sewage filters, the best modes of management to secure this permanency, the preliminary treatment of sewage by different methods to remove sludge before filtration, and different methods of aerating sewage filters to secure the greatest efficiency, and as well discussion of the methods of utilization of sewage for industrial purposes.

Transactions of the Fifty-first Annual Meeting of the Ohio State Medical Society, held at Columbus, May 27, 28 and 29, 1896. Cl., pp. 492; 8vo. Toledo.

The volume has as a frontispiece an excellent picture of the president, Dr. Daniel Milliken of Hamilton, whose presidential address was replete with sound advice. The addresses are excellent and some of the papers admirable. Obituary notices of Drs. Wm. S. Battles, T. J. Barton, Henry C. Beard, C. G. Comegys, T. M. Cook, Joseph Price and W. J. Scott are included in the volume. A copy of the new act to regulate the practice of medicine in Ohio, a list of members and a good index complete the volume.

The volume has been carefully edited by the secretary, Dr. Thomas Hubbard of Toledo.

Transactions of the New Hampshire Medical Society, at the 105th anniversary held at Concord, June 1 and 2, 1896. Cl., pp. 202, 8vo. Concord, N. H.

One of the entertaining features of the New Hampshire Medical Society is the annual dinner and the excellent postprandial speeches. In this particular few medical societies surpass that of the Old Granite State. Nor are the scientific needs of the meeting in any way neglected. The president's address (Dr. McQuesten) is instructive and the address of Dr. Gore with the discussion thereon by Dr. Conn and Dr. Hiland constitute an important contribution to climatology.

The next meeting of the society will be held in Concord the last week in May, 1897, under the presidency of Dr. A. P. Richardson of Walpole.

Preservation of Human Heads.—The *Journal D'Hygiène* of October 29, describes a simple process by which the savages of New Zealand prevent decomposition and keep as trophies the heads of their enemies in a perfect state of preservation. It suggests that a most interesting collection of specimens of the different races of the world might be made by this process for the practical study of ethnology.

NEW INSTRUMENTS.

A MODIFIED DIRECTOR.

BY E. R. LARNED,
CLASS OF '97, RUSH MEDICAL COLLEGE.

For the purposes of blunt dissection, no surgical instrument is so universally used as the grooved "director" devised by Professor Kocher of Berne, and yet it does not fully meet all the requirements of the general surgeon.

The writer does not claim perfection for this modified instrument, but believes that the alterations from the original have added very largely to its usefulness.

These changes consist in having the entire instrument made from one piece of metal (the handle portion being concave on two sides to decrease weight) for it is obvious that a solid instrument will not make as many visits to the repair shop as the one with a soldered hollow handle.

The blade has been made longer, more curved and much thinner than the ordinary director to facilitate working *around* glandular structures, in vascular regions, particularly in operations for the enucleation of tubercular and carcinomatous glands, and in the inguinal regions where thin-walled abscesses are likely to be punctured in the use of the knife.

The principal modification will be seen to be the serrations in the edges of the blade, which may vary in number and size to suit individual preferences as well as the length and width of the blade.

The purpose of these serrations is to enable the operator to use a sawing or tearing motion, increasing his power in separating tissues and breaking down adhesions, obviating still further the use of the knife after the initial incision.

The blade is grooved to guide the knife when it must be used (as in dividing the sterno-cleido-mastoid muscle in enucleating deep cervical glands); one groove is substituted for the three in the ordinary instrument, doing away with two unnecessary grooves and permitting greater thinness of the blade without diminution of its strength.

A fenestra at the tip of the blade as in Kocher's latest pattern permits its use as a ligature carrier—so that when necessary, vessels may be tied speedily without the aid of an aneurysm needle or regular ligature carrier. Directors without fenestræ may be obtained.

The instrument illustrated was made by Messrs. Drake & Mueller, 266 Ogden Avenue, Chicago, from the writer's model and was suggested by witnessing the frequent use of Kocher's director in the multitude of operations seen during three years attendance upon the surgical clinics of Rush Medical College, and by the statements of surgeon friends.

A NEW GROOVED ASPIRATOR NEEDLE.

BY J.A. DIBRELL, JR., M.D.
PROFESSOR OF ANATOMY, ARKANSAS INDUSTRIAL UNIVERSITY, MEDICAL DEPARTMENT.
LITTLE ROCK, ARK.

In a case of suspected pelvic abscess, I introduced an aspirator needle for diagnostic purposes, and finding pus, I incised the vaginal mucous membrane at the base of the needle with the intention of conducting along the round needle a director, and in the groove of this instrument a narrow scissors with the view of so dilating the opening that I could insert a drainage tube, irrigate and secure drainage.

Though the director was rather sharp pointed, the result was to push it out of the abscess wall.

It occurred to me that an aspirator needle could be made with a groove like a director for use in similar cases, and when the presence of pus or other accumulations are found, that the grooved director needle could be used without removal, to conduct a knife, scissors or other instruments for dilatation, and the introduction of drainage tubes.

I submitted a design and description of the needle to be made, to George Tiemann & Co., of New York City, who made the needle for me which is represented in the folowing cut.

The needle can be made of any size.

There are many conditions beside pelvic abscesses which will suggest themselves to the surgeon, in which such an instrument may be convenient: in accumulations in the pleural cavities for example.

There are also hepatic abscesses in which there are sometimes chunks of necrosed hepatic tissue too large to pass through any aspirator needle or trocar, and in which drainage becomes a necessity.

SOCIETY NEWS.

The Western Surgical and Gynecological Association. The fifth annual meeting of the Western Surgical and Gynecological Association will be held at Topeka, Kas., Monday and Tuesday, Dec. 28 and 29. We desire to extend to all regular physicians and surgeons a cordial invitation to be present and take a part in the proceedings. Topeka is a delightful city, noted for its hospitality and the local profession have arranged for our entertainment. A strong program is assured. Opening session at 1 P.M., December 28. H. E. Pearse, M.D., Secretary.

Association of Assistant Physicians of Hospitals for the Insane. The fourth meeting of this association will be held at the Eastern Michigan Asylum, Pontiac, Mich., on Dec. 3 and 4, 1896.

IRWIN H. NEFF, Pontiac, Secretary.

NECROLOGY.

CHARLES M. KITTREDGE, M.D., of Fishkill-on-the-Hudson, N. Y., died suddenly at Mount Vernon, N. H., on August 19. His death is believed to have been due to apoplexy. He had been in poor health and his case had been considered as very serious. He was suffering from Bright's disease, and he passed through a severe and dangerous attack from that malady in June. He left for New Hampshire on June 23, accompanied by his children, to spend the summer months in his native town, in hopes of gaining strength among the New Hampshire hills. Dr. Kittredge had been no worse since he left Fishkill and it could not be said that he had improved in health. Dr. Kittredge was born at Mount Vernon, 58 years ago. He spent his boyhood days there, finally taking up the study of medicine, after a liberal academic education. He graduated from Howard Medical College in 1867. He went to Fishkill twenty-six years ago, but previous to that he had been in the Hartford Retreat, an institution for the treatment of nervous diseases. At Fishkill-on-Hudson he established a home for nervous people, which comprised a beautiful estate. Dr. Kittredge took a great interest in his home, and he had one of the most beautiful and complete places in that town. He was one of the most prominent and best known citizens and was largely identified with all the movements to promote the welfare of the town. No one knew him but to like him and we believe that everybody was his friend. As a physician he had a prominence and he was a successful practitioner, though he did not care for an extensive practice, as he had his home

to look after. Dr. Kittredge was one of our well-known base singers and his excellent voice was often heard at the church concerts and at funerals. His wife died three years ago. Dr. Kittredge took a great interest in military matters. He served in the late war, enlisting in Company B, 13th Regiment Volunteers, of New Hampshire, Sept. 18, 1862. He enlisted as first sergeant and was promoted on March 26, 1863, to second lieutenant.

J. S. WINTERMUTE, M.D., of Tacoma, Wash., was shot by an insane patient on the morning of November 10, the bullet passing through the abdomen making six perforations of the intestines. The abdomen was opened and the bullet wounds in the intestines stitched up, but he died a few moments after leaving the operating table. James Stinson Wintermute was born April 27, 1860, at St. Paul, Minn. His boyhood years were spent in Canada; he entered the University of Michigan in 1879 and graduated at Rush College, Chicago, in 1883. Dr. Wintermute went to Tacoma, Wash., in 1884 and soon took a place in the front rank of the physicians in this city. He was married in 1888 to Miss Florence K. Jones of Olympia, and one son survives him. Dr. Wintermute has paid special attention to surgery and his practice in this line during the good times was a very lucrative one and he also accumulated quite a sum from fortunate real estate transactions. He was a member of the Pierce County Medical Society and also of the Washington State Medical Society.

DR. GEORGE W. BETTON died at his home in Tallahassee, Fla., on All Saints Day, Sunday Nov. 1, 1896, after a short illness. He was born in Alexandria, Va., on Feb. 22, 1822, and at the early age of four, before the days of railroads, he came with his parents to Florida on board a sailing vessel and landed on the Gulf Coast at the port of St. Marks. In 1842 he was graduated as Bachelor of Arts from St. Johns College, Annapolis, Md. He next attended lectures at the University of Pennsylvania at Philadelphia, and on the 4th of April 1845 received the degree of Doctor of Medicine from that time-honored institution. Although in his 74th year at the time of his death he still continued in active practice of his profession of medicine which he had followed for more than forty years.

PUBLIC HEALTH.

Etiology of Typhoid Fever.—The epidemic at Rheims among the dragoons was traced unmistakably to the dust stirred up by their evolutions, and Uffelmann's experiments demonstrate that the dried typhoid bacillus as also the cholera microbe can be disseminated in the air, and thus alight in dust on articles of food. Similar experiences are reported from Belgium as the cause of the present slight epidemic at Tirlemont. These facts tend to show that the water supply is not always to blame in epidemics of typhoid fever.—From *Journal d'Hygiène*, October 29.

Epidemic of Scarlet Fever in Brazil.—Dos Reis describes in the *Gazeta Méd. da Bahia* a recent epidemic of scarlet fever in Curityba, lasting almost a year. He had himself over five hundred cases in his practice. The disease was unusually severe in its manifestations, with many deaths and cases of consecutive paralysis and nephritis. More adults were attacked than children under 10 and it was more serious with them. He describes his treatment in detail, with which he was very successful, stating that the only deaths among his patients 4 per cent. were those whom he saw for the first time in an advanced and most critical stage.

The Garbage Question at Baltimore.—The following comments by the *Baltimore Herald* indicate how civic work is sometimes done, only to be done over again: "The agitation of the problem how to dispose of garbage in the most economical and satisfactory manner has borne fruit in the appointment of a special committee from the city council, which will visit various cities to study the methods in vogue there, and report the results of the investigations. Whether this is the most practical way of ascertaining what is the best method may be questioned. Men without special knowledge of the subject are hardly in a position to perceive and weigh the relative advantages of the several systems in vogue, special study being required to arrive at an intelligent comprehension of details. At the same time, however, the disposal of garbage otherwise than by dumping it in some more or less remote place has passed the stage of experiment. Reduction or incineration plants are being successfully operated in nearly all progressive cities. Not only do they dispose of the waste material which would otherwise contaminate the soil or pollute water courses but they make possible a considerable reduction in the expense of removal. The products of incineration or reduction, unlike when offal is merely carted away and dumped, have a commercial value which, in some instances, not only covers the cost of the processes, but leaves a margin of profit. The principal consideration, however, is that such disposal removes a grave menace to health. In Baltimore garbage is collected, loaded on scows and carried some distance down the river to be dumped into the water. Aside from the wastefulness of the proceeding, the decomposing vegetable and animal matter helps to fill up the ship channel and becomes a menace from a hygienic standpoint."

A Sanitary Triumph; Swill-feeding Enjoined at Philadelphia.—The Board of Health of Philadelpia has been waging war since February last against the use of the city's garbage for the feeding of pigs at points a short distance beyond the city limits. This matter culminated on October 17, at a trial in the court of common pleas. The bearing of this proceeding is stated as follows in the October issue of *Public Health*, and is held to be a victory for sanitation in the State at large: "This was an application for an injunction to restrain the defendant from collecting kitchen garbage and offal in any part of the city, from carrying it through the streets of the city, and then disposing of it to hogs, or by spreading it upon lands in the city or adjoining it. The allegation was that of collecting garbage and conveying it to a farm in Delaware County, near the county line, where he fed it to hogs; that he had no contract with the city for the collection of garbage, nor any license or permit from the Board of Health; that this course of conduct was in violation of the ordinances of Councils and the regulations of the Board of Health; that it was liable to prejudice the public health by reason of the bad odors which were carried from the farm to the city, and the probable sale of the unwholsome flesh of such fed hogs in the city. The defendant's answer consisted of admission of fact and denial of matters of law, and after arguments the court granted the injunction asked for by the city. When the case was called it was found that a cross suit had been brought asking for a mandamus to compel the Board of Health of Philadelphia to grant these parties a permit to conduct the business in any way that seemed good to them. The court held that the Board of Health of Philadelphia was established for the express purpose of deciding questions of this kind, and that, should the court grant the mandamus it would be usurping the functions of the Board and itself issuing the license, or that, in other words, the court would be substituting itself for the Board. The effect of this decision will be very far-reaching and will strengthen the position of every board of health in the State."

A Low Rate of Mortality.—The monthly statement of the Board of Health of the State of New York, for September, shows the low rate of mortality for the whole State of 17.5 per mille. Of the cities having 100,000 population or over, Rochester had 13.2, Buffalo 13.8, Syracuse 14.0, Brooklyn 18.2, Albany 18.6, New York City 18.7, respectively. There were

500 fewer deaths reported than in the corresponding month of last year. Among zymotic diseases the only material difference from the mortality of September, 1895, is in diarrheal diseases, from which the number of deaths is less by 600; the mortality from all diseases of the digestive organs is diminished. Acute respiratory diseases caused 150 more deaths, and from diseases of the circulatory system there were 100 more deaths than a year ago; from other local diseases as also from consumption and constitutional diseases there was no material variation. There were 800 fewer deaths under 5 years of age. Compared with the preceding month of August, the total reported mortality is decreased by 3,000, the deaths under 5 years of age being fewer by 1,200. Among zymotic diseases, the diarrheal mortality was not half as large. Typhoid fever, malarial diseases and diphtheria show an increase; whooping cough a decrease. Acute respiratory diseases have increased, all other local diseases diminished, and the deaths from accidents and violence, under which was placed last month a number from sunstroke, have fallen to the normal. The death rate from all causes is 17.50 against 23.25 in August and 18.50 in September last. The percentage of infant and zymotic mortality are respectively 36.0 and 19.75 against 49.0 and 24.65 in August, and 41.5 and 25.0 in September last. The September prevalence of typhoid fever is excessive in the Hudson and Mohawk Valley districts and in the Southern Tier and East Central districts; the percentage of deaths from typhoid fever in urban parts of the State was 2.0; in rural parts of the State 3.66. Diphtheria increased a little from August, but caused fewer deaths than in September of any year for ten years; in cities and villages it caused 3.50 per cent. of the deaths; in rural parts of the State, 1.57 per cent. Scarlet fever continues to cause few deaths, but is more widely distributed than in August.

Illinois Vaccine Establishment.—The following is Dr. Cook's report:

MENDOTA, ILL., Oct. 30, 1896.

To B. M. Griffith, M.D., President Illinois State Board of Health.

Dear Doctor:—In compliance with your request, conveyed to me by letter of the 22nd inst., from Dr. J. W. Scott, Secretary of the State Board of Health, I visited Urbana on the 26th inst., and, as desired, inspected the State Vaccine Propagation Station established in connection with the veterinary department of the Agricultural College of the State University.

By an Act of the Legislature, approved June 15, 1895, in force July 1, 1895, it was made the duty of the Trustees of the University to establish and manage "a laboratory in connection with the State University for the propagation of pure vaccine virus." It was provided in said Act, "That the State Board of Health shall exercise supervision of the methods of propagation and certify to the purity of all products."

In the interest of public health provision was thus made by the State to put in operation a vaccine propagation laboratory, to be equipped with all of the modern appliances, and under most approved conditions to produce a vaccine virus of such purity and effectiveness that the medical profession and the public could be assured of its safety and potency to prevent one of the remaining scourges of humanity—smallpox. We need not recite what is so well known, namely, the very great importance of knowledge, skill and conscientious care in all the details to be followed in providing an agent so valuable as a preventive of a loathsome disease. And further fact that its wider usefulness will be much advanced by increasing confidence on the part of the medical profession and public in the purity and reliability of the virus thus produced. It is to be regretted that the commercial spirit—the question of profit accruing to private parties—has so dominated its production as to cause want of confidence in the purity and safety of much of the vaccine virus on the market. Prompted by that knowledge, and actuated by the desire to advance a great public sanitary interest, the Legislature, at the suggestion of the State Board of Health, made provision for the establishment of a propagation station in connection with her great University, feeling confident that the work would be in hands in every way competent and reliable, fully informed in all the recognized methods and free from the trammels of desire for pecuniary gain.

We have the pleasure of reporting that every facility was given us to inspect thoroughly the State Vaccine Laboratory. We were fortunate in meeting and being aided in our examination by two members of the faculty of the University who have taken especial interest in and have given much personal attention to all the details necessary to equip and manage the Laboratory. We refer to Dr. Thomas I. Burrill, Vice-President, Dean of the General Faculty, and Professor of Botany and Horticulture; and Dr. Donald McIntosh, V. S., Professor of Veterinary Science, who is in charge of the Laboratory. These gentlemen are eminently competent, by reason of scientific attainments, to accomplish the work assigned to them and impress one with the thought that their desire and effort is to produce a product the purity and reliability of which can be certified by the State Board of Health.

We indorse the following extract taken from a recent circular letter sent out from the Laboratory: "The Laboratory, an isolated building to be used for no other purpose, has been provided and properly equipped to attain the purposes of the law. The most careful attention has been given to everything which can facilitate freedom from contamination. The ceilings, walls and floors of the operating and animal rooms are so finished that they can be frequently washed with hose and scrubbing-brush and thoroughly disinfected. A crematory is provided for burning all litter and other organic matter. None but animals bred by the university, or of well-known parentage and selected with great care will be used. Everything is being done to secure bacterial cleanliness and insure the preservation of the virus in a state of reliable purity."

Careful examination verified the correctness of the above statement. The building had been constructed for and used by the veterinary department. Some necessary changes were made in its arrangements, adapting it very well to the purpose of a vaccine laboratory. It is very pleasantly located in a grove nearly equidistant from University Hall and the buildings on the university experimental farm. In its exterior it has the appearance of a neat cottage, being extended in one of its dimensions by that part of the structure that is the temporary home of the juvenile bovines, in whose living laboratory is produced the animal immunizing agent—vaccine virus. The grounds, like all others about the university, are neatly kept. The interior of the building is pleasing. It is a model of neatness; with office, operating room and room adjoining, equipped with modern facilities for sterilizing, etc. The rooms for the heifers—we can not call them stalls—are convenient, well lighted and ventilated. The degree of cleanliness of all approaches very nearly that of one of our modern hospitals. The heifers selected are the best obtainable and their care and treatment the best possible. Their preparation for inoculation, the operation, subsequent care and process of securing and preserving the lymph are as aseptically done as possible. We only need to add that Sec. 3 of the Act establishing the laboratory reads: "That the product of the vaccine laboratory shall be furnished all physicians and health officers within the State at the cost of propagation."

Permit us to say that it is a great satisfaction to know that this, the first effort on the part of the State to produce and supply the people with an agent of universal value in preventing a terrible disease promises to be so successful, and that the money thus appropriated has been wisely expended. We can but feel that this and other kindred interests relating to the public health and the prevention and cure of disease appeal to our legislators for generous appropriations. Other States have demonstrated the feasibility and good results of establishing and sustaining laboratories for the production of antitoxin in the interest of public health. EDGAR P. COOK, M.D.

Health Report.—The following reports of mortality from smallpox, cholera and yellow fever have been received in the office of the Marine Hospital Bureau of the Treasury Department:

SMALLPOX—FOREIGN.

Athens, May 1 to 31, 7 cases, 1 death; June 1 to 30, 5 cases, 1 death; July 1 to 31, 1 case, 1 death; August 1 to 31, 4 cases.
Alexandria, July 23 to 29, 1 death.
Barcelona, September 1 to 30, 15 deaths.
Birmingham, October 17 to 24, 1 case.
Cairo, July 23 to 29, 3 deaths.
Gibraltar, October 11 to 18, 2 cases.
Havana, October 15 to 29, 470 cases, 69 deaths.
Licata, Italy, October 10 to 17, 5 deaths.
Liverpool, October 10 to 17, 1 case.
London, October 10 to 17, 2 cases.
Montevido, September 19 to October 3, 10 cases, 3 deaths.
Mozambique, August 1 to 31, 1 case.

Odessa, October 10 to 17, 16 cases, 3 deaths.
Rio de Janeiro, September 26 to October 3, 10 cases, 1 death.
St. Petersburg, October 10 to 17, 13 cases.
Tuxpan, Mexico, October 10 to 17, 4 deaths.
Warsaw, October 3 to 17, 13 deaths.

CHOLERA.

Alexandria, July 23 to 29, 24 deaths.
Bombay, September 30 to October 6, 11 deaths.
Cairo, July 23 to 29, 11 deaths.
Calcutta, September 19 to 26, 4 deaths.
Madras, September 26 to October 2, 8 deaths.
Yokohama, October 2 to 9, 2 cases, 2 deaths.

YELLOW FEVER.

Havana, October 15 to 29, 345 cases, 128 deaths.
Matanzas, October 21 to 28, 10 deaths.
Rio de Janeiro, September 26 to October 3, 5 cases, 1 death.
Sagua la Grande, October 10 to 24, 168 cases, 13 deaths.

MISCELLANY.

Customs of Russian Doctors.—The Russian physician, the *Record* says, considers it beneath his dignity to send a bill to a patient, but leaves it to the patient to pay what he thinks proper. Many think it proper to pay nothing. Are you acting the Russian in business matters? If so neither free silver, free gold, nor anything can save you from financial distress.—*Kansas City Medical Index.*

Illinois State Board of Health.—At the last meeting of the Illinois State Board of Health the "Illinois Medical College" was given further time in which to complete its equipment of the school, in order to obtain recognition; it has not yet been recognized. The "Dunham" Medical College (homeop.) was given time in which to complete its equipment. The "Harvard" Medical College was given authority to change its name to that of the Jenner Medical College.

Commission to Investigate Charitable Interests.—A resolution was passed by the legislature of Massachusetts at its recent session providing that the governor, by and with the advice of the council, appoint a commission, consisting of three persons, to investigate the public charitable and reformatory interests and institutions of the State; to inquire into the expediency of revising the system of administering the same and of revising all existing laws in regard to pauperism and insanity, including all laws relating to pauper settlements; and furthermore to inquire into the relation of pauperism and insanity to crime, with a view to securing economy and efficiency in the care of the poor and insane in the State. The commission is authorized to employ a stenographer and is given power to send for persons and papers, and to incur such expenses and receive such compensation for their services as the governor and council may determine. It is to submit its report, with a bill or bills, if practicable, to the governor and council before the first day of February, 1897.

Early Aid for Injured Employes.—The number of indemnities paid to injured employes in Berlin has dropped to about one-third since the practice has been adopted of taking charge of them with trained attendance from the start, and thus preventing the development of serious complications. The number of deaths has also decreased in proportion. The patients are restored to their work in the shortest possible space of time, and it is calculated that many thousands of dollars have thus been saved to the corporations which insure their employes against accidents. The *Journal D' Hygiène* of October 22, contains the report presented at the recent Samaritan Congress at Berlin. The ten "emergency stations" for first aid to the wounded, that were established by the corporations, are open also to the general public as the city allows them an annual appropriation of 1,000 marks. During 1895 they took charge of 13,856 injured persons; 7,508 belonging to the corporations. Over one-half the rest were too poor to reimburse the corporations for the expenses incurred on their behalf.

Deformity-Producing Shoes.—According to a recent article in the *Boston Med. and Surg. Reporter*, the ability to walk erect which distinguishes men from the lower animals, is menaced by our present fashions in foot gear. The writer evidently thinks it useless to combat the styles of shoes in vogue among adults, but he makes a vigorous appeal to have the feet of our children preserved from deformity, by supplying them with hygienic foot covering. He hopes that by the time they have attained maturity the fashions in shoes will become more sensible; and urges in the meanwhile that their shoes should be constructed on scientific principles. The sole of the shoe should not taper toward the toes, but should be broadest at the base of the toes, and continue broad or even wider to the tip, instead of compressing and utterly ignoring the functions of the fore part of the foot, as is the present custom. He thinks that the pointed toes worn so much recently by adults will result finally in serious senile troubles.

Vallid Warranty Against Suicide.—A warranty in an application for life insurance that the insured will not die by his own hand, whether sane or insane, the United States circuit court holds, in the case of Kelley v. Mutual Life Insurance Company, decided August 25, 1896, is valid. It had been contended that the warranty, in so far as it attempted to control the acts of the insured while insane imposed an impossible condition upon the contract, which was at the time of its execution known to be impossible, and was therefore void. But the court maintains that the clause should be construed in accordance with the announced general principles of construction, and that, under the situation, the warranty became of the force and effect of a promissory one, or stipulation to be performed, exempting from liability on the policy upon substantial breach thereof.

Allowable Use of Copyrighted Works.—According to the decision of the United States circuit court, N. D. California, handed down, in the case of Simms v. Stanton, June 25, 1896, what the law seeks to prohibit and to punish is the use of any part of a previous (copyrighted) book, animo furandi, with an intent to take for the purpose of saving oneself labor. It says that a copyright gives no exclusive property in the ideas of an author. These are public property, and any one may use them as such. An author may also resort with full liberty to the common sources of information, and make use of the common materials open to all. But his work must be the result of his own independent labor. Copying is not confined to literal repetition, but it includes also the various modes in which the matter of any publication may be adopted, imitated, or transferred, with more or less colorable alterations, to disguise the piracy. If such use is made of a previous work as to substantially diminish its value, or the labors of the original author are, to a material degree, appropriated by another, such use or appropriation is then deemed sufficient in point of law to support a suit for infringement of copyright. What would be a "fair use" in one case might not be in another. In determining this question, courts often look more to the value of the matter pirated than to the quantity. A controlling factor, which, among others, influenced the court in determining this particular case, was that both authors were writing on the same subject. It is difficult, it says, to conceive how writers on the same art or science can very well avoid resorting to the same common source of information and using the same common materials, and also in employing similar expressions and terms peculiar to the subject they are treating of. And it expressly holds that a writer of a work on physiognomy, which it thinks is an art, or approximates to a science, did not violate the copy-right law, in consulting and using another's works on that subject, it having been done without drawing from them to a substantial degree, though there were parallelisms, errors and repetitions, suggesting servile copying from the works of the com-

plaining author, some of which were explained by evidence that certain features common to the rival works had been obtained from other common and permissible sources.

Primary Sarcoma of the Vagina in Early Life.—Mr. D'Arcy Power, in the *St. Bartholomew's Hospital Reports*, 1896, records a case of this nature. The patient was somewhat more than 2 years of age when she first came under the care of the surgeon. Mr. Power refers to twenty-four other cases collected in a rather hasty examination of the literature. From a consideration of these cases he concludes that primary sarcoma of the vagina is only a specialized form of malignant disease which may effect any or all of those connective tissues which are involved in the complicated development processes associated with the formation of the cloaca. The sarcoma grows in the connective tissue of the pelvic organs and extends into the bladder, the urethra, the uterus or the vagina. It is either well circumscribed as in the case described, or is diffuse as in a case reported by Ahlfeld (*Archiv f. Gynäkol.*, Bd. xvi, p. 135), but whether circumscribed or diffuse, whether affecting the vagina alone or infiltrating all the neighboring organs, this form of sarcoma shows an almost constant tendency to become polypoid and multiple. As it occurs in children primary sarcoma does not, in the majority of cases, run a very rapid course. It does not ulcerate very readily. It does not usually affect the lymphatic glands. It does not disseminate, but its prognosis is very grave. It recurs quickly after removal, and it kills by interfering with the action of the pelvic organs, by retention of urine more often than by obstruction of the bowels. The diagnosis is easy, but the polypi are often looked upon as innocent growths, and their true nature remains unrecognized until the presence of a tumor in the pelvis shows that it is too late for surgical interference. Multiple polypi of the rectum and of the genito-urinary tract in young people, however, are so rare, and when they do occur, are so often associated with malignant disease, that their presence should always lead to a suspicion of such a condition. The complete cure has been effected in one or two cases of primary sarcoma of the vagina in children shows that the early and complete removal of the growth may be effectual in this as in other forms of malignant disease.

Construction of Representations to Medical Examiner.—In an action to enforce the collection of a policy of life insurance payment was resisted on the ground that there had been misrepresentations made by the insured to the medical examiner which constituted a breach of the warranty contained in the policy. Among other things, the insured had stated that he never had any disease of the bladder; that he never had any disease of the skin; and that he never had any disease of the urinary organs. Relating thereto, the jury were charged that a mere temporary ailment of the kind named would not constitute the diseases named as contemplated in the questions and answers given. In construing policies of insurance, it was further said that it must be generally true that, before any temporary ailment can be called a disease, it must be such as to indicate a vice in the constitution, or be so serious as to have some bearing, at least, on the general health and continuance of life, or such as, according to common understanding, would be called a disease; that the legal meaning of all or nearly all of the questions referred to had in one way or another been fixed by law; that in finding a verdict as to whether or not the answers to them were true when made they should be considered from and under the meaning given to them by the court; that the term "serious illness" means such illness as is likely to impair permanently the constitution, and render the risk more hazardous; and that "addicted to the use of chloral" means habitual constant use of it. These instructions, the supreme court of Tennessee holds, in Rand v. Provident Sav. Life Assur. Soc., decided Sept. 26, 1896, accord with the authorities and correctly state the law. When the applicant says that he has never had any "serious illness," it adds, the courts will construe the meaning to be that he has never been so seriously ill as to permanently impair his constitution, and render the risk unusually hazardous.

Connection Between the Cortex and the Labyrinth.—Ewald has found by experiments on dogs that the auditory nerve performs more than the mere auditory function, and therefore suggests that this name is misleading, and that it would be better to call it nervus octavus instead. He states that if the labyrinth is destroyed in a dog the animal loses the coördination of its movements, is unable to stand up, to walk, etc., but in the course of a few weeks these disturbances pass away, and the missing functions seem to be fully compensated in some way. The same phenomena occur if the other labyrinth is also destroyed; in time the animal learns to move as usual, even to run and jump. Similar results are produced by destroying on one side only the "excitable zone" in the cerebrum for the movements of the fore and hind legs; the dog learns in time to run and jump as nimbly as ever, even in the dark. But if later the remaining half of the "excitable zone" is also removed, then intensely severe and permanent disturbances follow. The animal can neither stand nor walk; he can not lie down on his breast or belly, only on his side, and in spite of the most strenuous efforts, he can not get up on his feet. He is still able to move his head, and uses it to propel himself. He gradually learns in time to use his extremities by purely reflex action, but is unable to make a single voluntary movement, and even the reflex movements are impossible in the dark. He loses control of his movements completely if taken into a dark room, and tumbles helpless to the floor; but after the room is lighted he regains control of his movements and is able to move as before. Ewald considers that this throws a new light upon the connection between the sight and the locomotor function. The proof of the extra functions of the nervus acusticus is therefore the diminished muscle power in the animal after the nerve is severed; also the lack of precision in its movements; also the lack of muscle sense, shown by the vertigo. The influence of the auditory nerve on the striated musculature is explained by the presence of the ciliated cells in the labyrinth, which produce uninterrupted excitation of the central nervous system. As the severed auditory nerve does not grow again, the explanation of the disappearance of the disturbances must be that its functions are substituted by other organs. The sense of touch substitutes the function of the labyrinth, as is evidenced by the fact that the coördinating power is not totally abolished until the entire "excitable zone" in the cerebral cortex is removed. The "excitable zone" and the labyrinth are able to substitute each other, and the same is true of the muscle sense and the sense of touch. This explains the comparatively slight motor disturbances in persons with injured labyrinths.—*Deutsche Med. Woch.*, October 22.

Liability of Counties in Emergency Cases.—Section 24 of the Illinois Pauper Act provides that "when any non-resident, or any person not coming within the definition of a pauper, of any county or town, shall fall sick, not having money or property to pay his board, nursing and medical aid, the overseer of the poor of the town or precinct in which he may be, shall give, or cause to be given to him, such assistance as they may deem necessary and proper, or cause him to be conveyed to his home, subject to such rules and regulations as the county board may prescribe; and if he shall die, cause him to be decently buried." By this, the appellate court of Illinois, for the third district, holds, in the case of the County of Madison v. Haskell, decided Dec. 6, 1895 (63 Ill. App. 537), that the legislature made it absolutely obligatory upon the county to make all necessary and proper provisions for extreme cases, such for

example as where persons, who are not paupers, are seriously burned by an explosion of oil when congregated at the scene of a railway accident. It can not avoid the liability so imposed, by its failure to appoint necessary agents or prescribe regulations as to the manner of doing it. If the defense is that the provision was not made, or not furnished in accordance with the rules and regulations prescribed by the board of supervisors, it is incumbent on the county to show that the county board prescribed reasonable rules and regulations on the subject, and what they were. Any rule or regulation of the county board which would have required a moment's delay on the physician's part, in such a case as that under consideration, if he had been informed of it, and that the overseer of the poor was within speaking distance, the court goes on to declare, would have been unreasonable, and he unworthy of a place in his profession if he had thought of it before acting. These people were entitled to medical aid if it could be had, on the instant and at the county's expense. Accordingly, the court affirms a judgment for services and materials furnished in favor of a physician who had those injured in this case conveyed to a hospital, in a neighboring city, of which he was a regular physician and surgeon, and where he afterward rendered the services in question, attending them. In the companion case of the County of Madison v. Halliburton, which has just been reported in 64 Ill. App. 99, the court further holds that the fact that the physician seeking to recover for services rendered under such circumstances is employed as the county physician, and paid an annual salary, will not prevent him from maintaining his action, his contract, though only verbal, covering the cases of the county "poor" only, his purpose in this case being to recover for the treatment of other than poor persons.

Hospitals.

THE DEDICATORY EXERCISES attending the opening of the new Post-Graduate Medical School and Hospital in Chicago were held November 7. The hospital was formerly on West Harrison Street, but was found to be inadequate. The new building is well equipped and fitted up according to modern designs. The ceremonies consisted of a surgical clinic held by Dr. L. L. McArthur, which was followed by a gynecologic clinic by Dr. Albert Goldspohn. A well-attended evening reception was given by the faculty, which was followed with an address by Dr. Theodor Klebs on the future of the institution.——The Bender Hygienic Laboratory of the Albany Medical College was formally dedicated October 27.——The new Provident Hospital Training School in Chicago was formally presented to the colored race October 29.——Plans have been prepared for the new University Hospital at Iowa City, Iowa. The structure will cost $50,000 and will consist for the present of a west wing and amphitheater.——The new buildings of the Bethesda Hospital, St. Paul, were dedicated November 12.——At the session of the United Presbyterian Women's Association, held in Pittsburg, October 30, property in Allegheny valued at $35,000 was presented by Dr. J. B. Herron to be devoted to the association and its successors to the use and benefit of the Memorial Hospital, with the proviso that a Campbell B. Herron memorial bed be established.——The corner stone of the St. John's Hospital at Long Island City was laid November 11 with appropriate exercises.——The annual meeting of the board of directors of the Free Hospital for Women in Brookline, Mass., was held October 29. The report showed 261 patients treated in the hospital during the year.——The management of the National Temperance Hospital, an affiliated interest of the W. C. T. U., has purchased ground for a temperance hospital in Chicago.

Cincinnati.

THE MORTALITY report for the week shows: Diphtheria 4, typhoid fever 4, other zymotic diseases 7, cancer 3, phthisis pulmonalis 8, local diseases 57, developmental 17, violence 2; under 5 years 31; all causes 102; annual rate per 1,000, 15.15; deaths during preceding week 90; corresponding week in 1895, 102; 1894, 123; 1893, 110.

Dr. CHARLES A. HOUGH of Lebanon, Ohio, recently passed through an attack of diphtheria. He was in a private ward at the Cincinnati Hospital.

THE latest news item from the Cincinnati Hospital is that they have been receiving less milk than has been paid for, and something over $1,000 is claimed in rebate. It is alleged that the cans do not hold as much as they were supposed to.

THE HOSPITAL CORPS of the First Regiment have recently been denied admission to the receiving ward of the hospital. This organization has been doing much good work in the past and without one cent of expense to the city, and this new move on the part of the new management will in times of serious disasters deprive the institution of the valuable aid of this well trained corps; and the reason for the move has not as yet been evident.

AN UNUSUAL CASE of mental disease was admitted to the city hospital last week. A middle-aged man was found wandering about the streets and when questioned could give no account of himself. Upon examination, when recovered, he talked rationally until asked what his name was and where he lived, both of which he is unable to say. His general health is good and this is the second attack he has had within a period of several years.

A SEVERE EPIDEMIC of diphtheria is present at Parkersburg, W. Va., and several cases of the malignant type have appeared.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Nov. 7 to Nov. 13, 1896.

First Lieut. John H. Stone, Asst. Surgeon, is relieved from duty at Ft. Leavenworth, Kan., and ordered to Ft. Riley, Kan., for duty at that station.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Nov. 14, 1896.

Asst. Surgeon H. La Motte, detached from the naval hospital, Norfolk, Va., and ordered to treatment at naval hospital, Philadelphia, November 11.

Surgeon E. H. Marsteller, detached from the "St. Mary's," ordered home and placed on waiting orders, November 13.

Surgeon B. Whiting, ordered to the "St. Mary's."

Change of Address.

Akins, W. T., from 180 Wilmot St. to 1122 Southport Av., Chicago.
Grote, H. W., from Oakland Music Hall to 5127 Lexington Av., Chicago.
Scates, D. W., from Greenfield, Tenn., to 223 Lexington Av., New York.

LETTERS RECEIVED.

Aikman, J. C., New York, N. Y.

Bailey, Wm. Curtis, Las Vegas Hot Springs, N. M.; Boehringer, C. F. & Soehne (2), New York, N. Y.; Betton, G. W., & Son (Drs.), Tallahassee, Fla.; Battle Creek Sanitarium, Battle Creek, Mich.; Boot, G. W., Spencer, Iowa.

Cantwell, A. W., Davenport, Iowa; Cowan, Chas. S., Fort Jones, Cal.; Cullen, G. W., & Son, Cullen P. O., Va.; Cordier, A. H., Kansas City, Mo.; Cale, G. W., Jr., St. Louis, Mo.; Chapman, C. J., Chicago, Ill.; Carter, J. A., Carthage, Mo.

Dewees, Wm. B., Salina, Kan.; De Schweinitz, G. E., Philadelphia, Pa.; Daly, B., Lake View, Ore.; Daland, Judson, Philadelphia, Pa.

Ewing, W. G., Nashville, Tenn.; Elliott, A. R., New York, N. Y.; Eastman, C. A., Exeter, N. H

Fassett, Chas. Wood, St. Louis, Mo.; Fuller's, Chas. H., Advertising Agency, Chicago, Ill.; French, J. M., Milford, Mass.

Garcelon, A., Lewiston, Me.; Grace, M. B., Iredell, Tex.

Howard, Wm. R., Ft. Worth, Tex.; Hare, H. A., Philadelphia, Pa.; Haldenstein, I., (2) New York, N. Y.; Herrick, J. B., Chicago, Ill.

Kny, Richard, & Co., New York, N. Y.; Korn, A., Chicago, Ill.; Kennedy, T. C., Shelbyville, Ind.; Kreider, Geo. N., Springfield, Ill.

Long Island Bottling Co., Brooklyn, N. Y.

Mayfield, W. H., St. Louis, Mo.; Meany, Wm. B., St. Louis, Mo.; McFarland, George C., Jacksonville, Ill.

Open Court Publishing Co., Chicago, Ill.

Probst, C. O., Columbus, Ohio; Parke, Davis & Co., (2) Detroit, Mich.

Smart, Charles, Washington, D. C.; Souchon, Edmond, New Orleans, La.; Shuey, J. J., Red Oak, Iowa; Short, J. L. La Grange, Ind.

Tinker, N., Athens, Ohio; Taylor, Lewis H., Wilkes Barre, Pa.; Tiffin Newspaper Agency, Tiffin, Ohio.

Van Nort, John P., Bayshore, L. I., N. Y.; Von Ruck, Karl, Asheville, N. C.

Woltishek, F. J., Cedar Rapids, Iowa; Watsen, Walter, Jacksonville, Ill.; Winn & Hammond, Detroit, Mich.; Wyckoff, R. M., Brooklyn, N. Y.; Wood, William & Co., New York, N. Y.; Whitfield, S. T. Uniontown, Ala.